DOCUMENT RESUME

ED 222 482 SP 021 261

AUTHOR	Tursman, Cindy
TITLE	Good Teachers: What to Look For. Education USA Special Report.
INSTITUTION	National School Public Relations Association, Arlington, Va.
PUB DATE	81
NOTE	101p.
AVAILABLE FROM	National Schools Public Relations Association, 1801 N. Moore St., Arlington, VA 22209 (Stock No. 411-13560, $13.95).
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Classroom Techniques; Educational Quality; *Educational Research; Educational Strategies; Elementary Secondary Education; Instructional Improvement; Teacher Attitudes; Teacher Behavior; Teacher Characteristics; *Teacher Effectiveness; *Teaching Methods; Teaching Models; *Teaching Styles
IDENTIFIERS	Teacher of the Year Award

ABSTRACT

Trends and issues in research into effective teaching are examined in this report. The status of the teaching profession is discussed in the first chapter, and developments in teacher evaluation, unionization, and effective schools research are traced. In the second chapter, research findings on the effects of teaching styles and of teacher behavior and attitudes are reviewed. Chapter 3 contains an overview of findings on teaching methods. Successful school models are described, and variables in the teaching setting, such as class size, formal versus informal instruction, and individualized instruction methods are featured. Research on classroom management and behavior problems is reviewed in the fourth chapter. The fifth chapter contains excerpts from interviews with 11 Teachers of the Year on their teaching methods and their attitudes toward teaching. Recommendations, models, and tips are offered in the sixth chapter. A bibliography of over 60 references is appended. (FG)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED222482

GOOD TEACHERS: WHAT TO LOOK FOR

"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

C. Buterbaugh

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

EDUCATION USA
SPECIAL REPORT

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☑ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

A Publication Of The National School Public Relations Association

SP 021 261

Copyright 1981
National School Public Relations Association
1801 N. Moore Street
Arlington, Virginia 22209

Library of Congress Catalog Card No. 81-844474

Stock No. 411-13560. All orders under $15 must be accompanied by payment. All orders over $15 must be accompanied by payment unless submitted on an authorized purchase order from a school district, organization or institution. Billed orders will include shipping and handling charges. Address communications and make checks payable to National School Public Relations Association, 1801 N. Moore Street, Arlington, Virginia 22209.

Table of Contents

Chapter 1 Setting the Stage 1

Chapter 2 Instruction 11

Chapter 3 Which Method to Choose? 26

Chapter 4 Classroom Management 48

Chapter 5 What Do Teachers Say? 59

Chapter 6 Recommendations, Models, Tips 78

Bibliography 93

Acknowledgement

Good Teachers: What to Look For was written by Cindy Tursman of Baltimore, Md., managing editor of the *The School Administrator.*

The editors wish to thank all the teachers who gave their time to contribute their ideas to this report.

Good Teachers: What to Look For is one of a series of EDUCATION USA Special Reports designed to give educators and other interested persons concise and comprehensive information about current trends and issues in education. It was developed and produced by the EDUCATION USA Special Reports staff: Anne C. Lewis, executive editor; Sherry Freeland, associate editor; Corinne Buterbaugh, director of marketing and product development and Joanna Matthews, editorial and production specialist.

Chapter 1

Setting the Stage

What makes an effective teacher? Knowledge of the subject matter? Stage presence? Technique?

In his introduction to *Masters: Portraits of Great Teachers*, Joseph Epstein describes teaching as a performing art and likens it to opera. He says that in teaching, like singing, there is many a tried, but no true, method or technique for getting the subject across. Teachers use:

> Socratic teasing, sonorous lecturing, sympathetic discussion, passionate argument, witty exposition, dramatics and other sorts of derring-do, plain power of personal example, main force of intellect, and sometimes even bullying.

While these techniques vary from one teacher to the next, Epstein finds that what all great teachers have in common are "love of their subject, an obvious satisfaction in arousing this love in their students, and an ability to convince them that what they are being taught is deadly serious.

While most educators and researchers would not argue with Epstein, there was a definite attempt throughout the '70s to evolve a scientific basis for teaching and learning, an attempt to quantify teacher behavior and link these measures to student achievement.

Moreover, this attempt, while advancing the "science of education," was sometimes misinterpreted, as if the findings of educational research could be "bottled up" and doled out as teaching remedies. Such an application of research is about as effective as the elixers were and possibly more dangerous. As one researcher noted, "Research findings concerning time-on-task, for example, have been misinterpreted to mean that teachers should stand over students with stop watches to clock their on-task behavior."

Although this report will examine teaching as a science, this in no way should detract from the premise that teaching is an art. The trick of effective teaching, one suspects, is to keep students actively engaged in learning without their consciously knowing that is what they are doing. (Teaching is first and foremost a subtle art!)

Another caveat is in order. Teaching as a science is in a third stage of development. The first and oldest stage, marked by standard measures like IQ, the bell-shaped curve and standardized testing is still present, but it has lost ground to the second stage which measures **aptitude** in terms of time and learning conditions and **learning** in terms of criteria rather than norms.

A third research stage is also emerging, one which examines teacher behavior as it affects student achievement.

Both the second and third stages are more concerned with the outcomes of instruction while the first is primarily concerned with "givens" such as "innate ability," socioeconomic status and where the individual student stands in relation to other students.

The first research phase is primarily concerned with static concepts—"one-shot" assessments of learning or "potential" for learning.

The emphasis in both the second and third research efforts is on dynamic concepts—"alternate variables," or those elements which can be changed to improve learning over time. These efforts are concerned with development and view teaching and learning as a process.

Research which relies on the first type appears deterministic; it assumes that teachers cannot do much to alter achievement. Research using variables of both the second and third types assumes there is a great deal teachers can do to improve learning.

All of these research developments are also linked to teaching as a profession. Teaching, once regarded as one of the learned professions on par with medicine, the law and theology, has fallen out of favor for a number of reasons, but the principal charge against teaching is that it is a "soft" science, if indeed a science at all.

A front-page article in a 1977 *New York Times* section on education stated, for example, "The only constant in educational research is the continuity of ambiguity . . . Education moves forward in ignorance."

Yet, a fairly coherent body of research related to effective teaching and learning is emerging from the work of those involved in the second and third types of educational research. This includes work in mastery learning as well as what is called "process-product" research (how the teaching process affects learning). It also includes the effective schools research of Brookover, Lezotte, Rutter, Edmonds and others as well as considerable research concerning classroom management.

Far from being ambiguous, the research indicates the variety of approaches effective teachers use. Moreover, it focuses attention on the learner and what teachers can do to become more effective.

Is Teaching a Profession or a Trade?

Approximately 1.7 million teachers belong to the National Education Association (NEA) and nearly 579,000 teachers belong to the American Federation of Teachers (AFT).

Teachers, particularly those in urban areas, do not see unionism and professionalism as mutually exclusive. But as an issue of *Basic Education* points out, teachers live in a kind of professional "no man's land":

> Not many can match the academic preparation of college and university teachers, and even those who can have felt the condescension of their professorial counterparts, whose very titles make their ranks plain to see. On the other hand, probably not many are content to be relegated to the ranks of labor, where union leaders tell them they belong. The great majority want to be counted as professionals.

For many teachers, joining a union is a Catch-22 situation. On one hand, strong unions and collective bargaining tend to help teachers make salary and other gains. In a study of the impact of collective bargaining in Michigan and New York, for example, Randall Eberts and Lawrence Pierce of the U. of Oregon found that unions and the collective bargaining process make a difference in the way school districts allocate resources among budget categories. The study showed unions tend to increase per-pupil expenditures by increasing teacher salaries and benefits and by decreasing class size.

On the other hand, teacher unions may also encourage the perception by both the public and "management" of teachers as blue-collar workers. As an April 1981 article in *Newsweek* notes:

> The unions are the source of considerable friction within and without the profession. Some critics believe that they have given teachers an unseemly blue-collar image. It's the strikes, more than anything else, that seem to gall the public.

Then, too, the persistence in education of what Alvin Toffler, author of *The Third Wave*, has called the "second wave" or factory model may lead management to view teachers as so many workers on an assembly line.

But regardless of union activity, teacher salaries vary with the wealth, "politics" and priorities of each state. Even in the states where per-pupil expenditures are rising, however, salaries aren't particularly impressive. Alabama, for example, recently gave teachers a 16% salary increase in the state formula, setting $13,000 as the starting salary. (Nationally, the mean salary for teachers rose from about $11,000 in 1973 to $16,000 in 1979, according to Bureau of Labor statistics.)

Moreover, to win salary increases from state legislatures, teachers may have to accept "trade-offs"—teacher competency testing and evaluation of veteran teachers.

Then, too, most plumbers and truck drivers make more money per year than the average elementary school teacher. As Vincent O'Neal notes in the March 1981 issue of *Learning*, union plumbers and truck drivers average $19,200 a year while elementary teachers average $14,300.

Is a teacher's job worth less to society than a plumber's or a truck driver's? The U.S. Equal Employment Opportunity Commission is developing a measure of job worth which may eventually serve to upgrade salaries in "female-dominated" occupations, including elementary and junior high teaching. In the meantime, however, it appears most teachers will have to settle for the intrinsic values of teaching. And these rewards, as teachers will attest, are considerable.

"Identify with the trade, like a guide on a mountain, a sailor on the sea. And remember you will not be paid unless, in your spirit, you are ready to work for nothing."

(Jean-Louis Barrault, *The Christian Science Monitor*)
(August 22, 1980)

Additional factors have served to hinder the development of teaching as a profession. These include control of teaching at the state and local levels.

While governing organizations of professions are given considerable autonomy, control of teaching is largely vested in state departments of education, higher education institutions and local school authorities.

As Robert Howsam points out in the October 1980 *Phi Delta Kappan*, teachers are at the bottom of a complex hierarchy. Limits on discretionary decision-making as well as evaluation and supervision of teacher performance are determined by "the system" rather than by teachers themselves.

"Thus the stronger influence on the teachers' professional behavior and thought is the employing system rather than the organized profession," Howsam says. "It is difficult for a potential profession to mature in either its professional culture or its autonomy and exercise of responsibility under such circumstances." Howsam recommends that a professional commission of teachers be created to determine standards and certification requirements.

Competency Testing: Insult or Cure?

Just as the movement to require students to pass minimum requirements for promotion or graduation has gained momentum in recent years, so has the movement to test teachers **before** and **after** they are hired. These outside demands for accountability also diminish the view of teaching as a profession in control of its own destiny and standards.

The public continues to vote a strong "yes" for teacher and administrator testing in the annual Gallup surveys of public attitudes toward the public schools. A recent Gallup poll conducted for *Newsweek*, for example, shows 89% of those polled favor teacher competency tests before hiring. Teachers themselves, however, remain somewhat divided on the issue. Some see competency testing as an insult and not at all indicative of the skills needed for success in the classroom; others see testing as at least one way to weed out those grossly incompetent, including tenured teachers.

If one could determine a person's ability to succeed in a pragmatic art by administering a written exam, "Howard Cosell would wear a helmet instead of a toupee and play cornerback for the Dallas Cowboys," says Gene Lyons in the October 1980 *Phi Delta Kappan*. Yet, Lyons is quick to add, "If Howard Cosell thought a touchdown was scored by letting the air out of the football, or that a field goal was worth 14 points, I think one could safely say his usefulness to the Cowboys would be limited."

Teacher unions are divided on the testing issue. AFT went on record at its 1979 convention as opposing the use of teacher exams for making decisions regarding retention, salary or tenure but supported their use to test new teachers on their literacy, knowledge of subject matter and pedagogy. The NEA, on the other hand, categorically opposes the use of tests, such as the National Teacher Examination (NTE), as either a condition of employment or as a method of evaluating educators.

A sizeable number of school districts use either their own competency exams and/or the NTE to screen teacher candidates. And proposals for teacher testing have been introduced in state legislatures from New York to Arizona. Regardless of the merit or outcome of such proposals, however, the public mandate for accountability is here.

The notion of teaching as a profession also is seriously challenged by demands to improve teaching which originate from outside the profession itself. One encouraging sign may be a trend among universities and colleges to revamp their teacher education programs

and impose higher standards (see Chapter 6). Another positive trend may be strong district support for inservice education and teacher centers for both teachers and administrators to counter "combat fatigue," learn about new methods and test research findings.

Teaching as Art and Science

Teaching has been criticized for not being able to articulate a science, a set of rigorous laws that will yield predictable outcomes. But as Nathaniel Lees Gage has pointed out, the goal of educational research is not to develop a hard science or set of laws. Rather, it is to develop scientific **generalizations** which can guide the teaching process. Gage also argues that teaching, like the work of the research scientist, engineer or physician, involves both artistry and science:

> To practice medicine and engineering requires a knowledge of much science . . . But using science to achieve practical ends requires artistry—the artistry that enters into knowing when to follow the implications of the laws, generalizations and trends, and especially, when not to, and how to combine two or more laws or trends in solving a problem.

Gage's corollary: "In teaching, where the artistic elements also abound, a scientific base can also be developed." This scientific base has grown substantially over the past few decades.

Mastery and Alterable Variables

The work of Benjamin Bloom and John Carroll in the 1960s and James Block in the mid-1970s represented a major break from the widely held view that ability to learn is determined at birth and "fixed" in large measure before children enter school. Until their research, the prevalent view was that intelligence and socioeconomic factors accounted for most of the achievement differences among students.

No one would deny that the family and home exert a strong influence upon young children. Bloom himself has devoted a great deal of study to the relationships between early childhood development and development in later years. But Bloom, like R.H. Dave (1963) and Richard Wolf (1964), finds it is what parents **do** in the home—how they organize time and space, for example—rather than their socioeconomic status is more important for learning.

And, as is consistent with Bloom's other work, he found that it is what people **do**, whether in the home or school environment, which can be structured or restructured to help learning. As Bloom says in *All Our Children Learning:*

> I find that many of the individual differences in school learning are man-made and accidental rather than fixed in the individual

at the time of conception. My major conclusion is, 'What any person in the world can learn, almost all persons can learn if provided with appropriate prior and current conditions of learning.'

It is precisely this view of learning as behavior which is malleable rather than fixed which marks Bloom's departure from the "determinists' camp."

Bloom's view has led to a more optimistic view of the learner—one which holds that high levels of achievement are possible for all students.

Like Carroll (1963), Bloom also defines aptitude as the amount of **time** required by the learner to attain mastery of a given subject or task rather than as a measure of intelligence. Both Carroll and Bloom have found that given sufficient time and appropriate learning conditions, 95% of students can learn a subject to a high level of mastery. Moreover, Block (1971) and others have found that under mastery learning some 80% of students can reach the same level of achievement formerly "reserved" for the top 20% taught under "traditional" conditions.

Bloom's recognition of **time** as a key variable in the learning process has greatly changed the direction of educational research and practice. He has also identified other variables which can be altered or controlled to improve learning. These include prerequisite (entry) skills, use of instructive rather than achievement tests and quality of teaching (interactions with students).

His work is a major departure from the old school in that he focuses attention on behaviors in the teaching and learning process itself rather than on outside factors presumed to be beyond the teacher's control (student socioeconomic status, for example).

Research on effective teaching or what is often called "process-product" research has similarly shifted away from examination of **characteristics** of effective teachers to **behaviors** of effective teaching.

Moreover, research concerning effective schools is moving beyond mere labeling of characteristics to an examination of the complex interaction of human behaviors and attitudes which make up school climate, curriculum and instructional strategies.

Process-Product Research

Numerous reviews of process-product research conducted throughout the '60s and '70s reached negative conclusions about its validity.

In 1978, for example, W. Doyle asserted that: "Reviewers have concluded with remarkable regularity, that few consistent relationships between teacher variables and effectiveness criteria can be established."

But Gage (1978) found that when tests of statistical significance and probability are applied across studies of teacher behavior and student achievement, clear scientific generalizations can be made. Among Gage's findings:

- Teacher praise and teacher acceptance of pupil ideas relate positively to student achievement.
- Teacher indirectness (what Ned Flanders, 1967, defined as soliciting opinions, ideas, praise or encouragement, applying and enlarging on student opinions and ideas and accepting student feelings) relates positively to student achievement. However, as Gage also reports, the work of Gene Glass, et al, shows teacher indirectness is more effective with high school than with elementary students.
- Teacher criticism and disapproval relate negatively to student achievement.

While such conclusions may appear obvious, previous reviews did not use Gage's method of analysis across studies and therefore found inconsistencies. Much of Gage's contribution to the field has been in "setting the record straight" and defending more complex studies of multiple process-product variables and teacher effects on learning. It is primarily Gage's view as well as those of others in his camp (Good, Biddle, Brophy, Rosenshine, etc.) which has finally prevailed.

It should also be noted that process-product researchers are attempting to determine what Bloom might call the "alterable variables" of teacher behavior. And like Bloom, these researchers not only share a positive view of the learner, they are convinced that teacher behavior **can** and **does** make a difference in student achievement.

Effective Schools Research

One of the major contributions of the effective schools research has been the finding that school climate—defined by Wilber Brookover (1978) as the norms and expectations held by students and staff—may explain differences in student outcomes **as well as** or **to the same extent** as the differences in family background and the socioeconomic and racial composition of schools. Carefully controlled studies have demonstrated that schools **can** and **do** make a difference in

learning outcomes which cannot be explained by the socioeconomic characteristics of their student populations.

In *Good Schools: What Makes Them Work*, the companion to this book, the following generalizations were made about effective schools based upon current research:

- Effective schools are characterized by strong instructional leaders who know how to manage time and people efficiently and effectively.
- Effective schools have a positive school climate which is conducive to learning.
- Effective schools have curricula designed to meet the specific needs of students.
- Teachers in effective schools use teaching techniques which keep students actively engaged in learning. Moreover, both classroom and building-wide management practices reflect a respect for the learning process and the learner.

Effective schools research is particularly concerned with how principal, teacher and student attitudes and behaviors interact and are reflected in student achievement gains across schools or within schools, while effective teaching research zeros in on specific teacher attitudes and behaviors during instruction.

It should come as no surprise, then, that the two research areas are complementary and frequently overlap. Brookover's definition of school climate, for example, includes instructional practices.

On the other hand, as with instructional methods, the specific behaviors used to achieve the same or similar goals may vary slightly from context to context.

Summary

- **Effective teaching is both an art and a science.** During the past two decades, educational researchers have redefined teaching and learning as a dynamic process and have altered variables in this process (notably time-on-task and teacher behaviors) to improve learning. From these efforts, as Nathaniel Lees Gage argues, a scientific basis for the art of teaching is emerging. And as the term implies, this scientific base in no way negates the importance of teaching as an art. Rather it should serve to advance a profession which has long valued the creative, human relations and communications skills teaching requires.

- **Effective teaching is both a profession and a trade** where knowledge of subject matter and teaching skills are equally important. A number of factors have challenged the professional status of teachers including state and local control, union activities, low salaries and competency testing. Universities, colleges and school districts, however, are engaging in more rigorous preservice and inservice training programs to upgrade the profession. Findings from educational research are also being applied in classrooms across the country to increase student achievement.
- **Research findings concerning climate, teacher attitudes, instruction and management** are **complementary** and have generated **valid generalizations** which teachers can use to improve learning.

Chapter 2

Instruction

Benjamin Bloom's work and the research concerning effective schools and teachers all concluded that not only are teacher attitudes toward learners easily conveyed to students but these attitudes also largely determine achievement outcomes. This seems logical since teacher attitudes about student abilities are also important to school or classroom climate. Bloom found slow learners, when provided more time, can:

> Learn to the same achievement level as the faster learners . . .: They appear to be able to learn equally . . . complex and abstract ideas, they can apply these ideas to new problems, they can retain the ideas equally well, and their interest and attitudes toward the subject . . . are as positive as those of the faster learners.

Bloom believes all students can learn given proper learning conditions (including time and appropriate prerequisite skills). The belief that all children can attain high levels of achievement runs counter to the traditional view that certain students will fail, some will learn moderately well and others will excel (the bell-shaped curve). As Bloom points out:

> The teacher is very effective in conveying these categories to students through relatively subtle techniques in the interaction that takes place during the course or term. Teachers rarely expect most of the students to learn well—and the students come to accept the teacher's view of them and their learning capabilities.

Simply stated, teacher expectations become self-fulfilling prophecies. Studies bear out this observation.

In a simple experiment, J. Michael Palardy (1969), for example, compared teacher expectations concerning sex differences in reading achievement tests. He gave teachers a questionnaire on a variety of issues, including one question about sex differences in first-grade reading achievement. At the end of the next school year, he compared teachers' responses to this one survey item with their students' reading achievement scores. Boys' and girls' scores (adjusted for IQ) showed no difference among teachers who expected no difference. However, scores were higher for girls in the classes of teachers who expected

girls to do better than boys. Also, girls' scores in the classes where teachers expected them to do better than boys were similar to those for both boys and girls in the classes where teachers expected no differences. Thus, both groups of teachers got the results they expected, but the group which expected no difference got better overall results.

"Academic Press"

All of the research concerning effective schools and teachers clearly shows that the attitude all students can learn and that "academic press" are crucial for student achievement gains. In his study of elementary schools in Michigan, Wilbur Brookover found teachers in effective schools did not "write off" students as incapable of learning:

> An essential characteristic of effective schools is the belief that students can learn. Teachers who evaluate their students as unable to learn are less likely to devote time and energy and make a commitment to their teaching and less likely to expect students to learn.

Moreover, the **level** or **degree** of student achievement is associated with the level or degree of expectations held by teachers and other students, according to Brookover and others. Not only do effective teachers believe their students can learn, they also expect them to do so. As Jere Brophy (1980) notes, "Students tend to learn more when their teachers believe that instructing students in the curriculum is basic to the teaching role, expect their students to learn, and act accordingly. These teachers make it their business to see that students master key objectives of the curriculum, reteaching or finding another way to teach if the first approach is not successful," he says.

In other words, effective teachers take responsibility for seeing that students learn. And because they believe all children can learn, they attribute failure to deficiencies in their teaching approach rather than to inherent deficiencies in their students.

Variables That Can Be Changed

Time-on-Task

Numerous studies have demonstrated the high correlation between what is commonly called "time-on-task" (the amount of time students

spend actively engaged in learning) and achievement.

A six-year study funded by the National Institute of Education (NIE), the *Beginning Teacher Evaluation Study* (BTES), found that academic learning time—time spent on academic tasks of **appropriate difficulty**—is positively related to student achievement.

The qualifier, "tasks of appropriate difficulty," is important because it implies effective teachers know how to diagnose and prescribe learning activities which neither frustrate students because they are too difficult nor put students "on hold" because they are too easy. It also indicates management strategies, such as monitoring and evaluation, are an integral part of effective instruction.

Charles Fisher and other researchers who logged academic learning time in 46 second- and fifth-grade classrooms found:

- The teacher's accuracy in diagnosing student skill levels is related to student achievement and academic learning time.
- The teacher's prescription of appropriate tasks is related to student achievement and student success rate.
- More substantive interaction between the student and an instructor is associated with higher levels of student engagement.
- Academic feedback is positively associated with student learning.

The NIE study is noteworthy because it positively links academic learning time with five teaching behaviors—diagnosis, prescription, presentation, monitoring and feedback. It also demonstrates the vast difference in academic learning time for students of "efficient" versus "inefficient" teachers. As Barak Rosenhine (1980) says of the NIE study:

> The average daily academic-engaged time is about one hour 30 minutes in second grade, and one hour 55 minutes in the fifth grade. In each case, this is about 40% of the in-class time. The high (or efficient) teachers are about 30 minutes above this figure; the low teachers were about 30 minutes below.

Spread over 180 days, the length of the typical school year, the difference between high and low teachers is 180 hours; i.e., students of efficient teachers may spend 180 more hours actively engaged in learning per year than students of inefficient teachers.

Given the importance of time in the learning process, these are extremely significant findings. (Mastery learning and direct instruction are two methods teachers use primarily because they result in greater academic learning time.)

Summary of Findings: Instructional Processes and Classroom Environment

- The teacher's ability to diagnose student skill levels is related to student achievement and academic learning time.
- The teacher's ability to prescribe appropriate tasks is related to student achievement and student success rate.
- More substantive interaction between the student and an instructor is associated with higher levels of student achievement.
- Academic feedback is positively associated with student learning.
- Structuring of the lesson and giving directions on task procedures are positively associated with student success rate.
- Explanation specifically in response to student need is negatively associated with student success rate. (Teachers should not have to re-explain.)
- More frequent reprimands for inappropriate behavior are negatively associated with student learning.
- The teacher's value system is related to academic learning time and to student achievement. Teacher emphasis on academic goals is positively associated with student learning.
- A learning environment characterized by student responsibility for academic work and by cooperation on academic tasks is associated with higher achievement.

Beginning Teacher Evaluation Study

Another NIE study by Jane Stallings at SRI International (1979) goes beyond the BTES to describe how academic learning time should be spent to produce student achievement gains in a specific content area—remedial reading. The study—*The Teaching of Basic Reading Skills in Secondary Schools*—suggests activities in secondary remedial reading classrooms should be "reasonably balanced between reading aloud, silent reading and written assignments."

Findings from the study include:

- Teachers of the low-pretest/high-gain students provided instruction 16% of the time, discussed or reviewed written work 12% of the time and had students reading aloud 21% of the time. These percentages were higher than those for all other groups.
- In classrooms where teachers provided more support and positive feedback, the students gained more in reading achievement. The low-achieving secondary students seemed to need this nurturing environment more than did those secondary students who were achieving at a higher level.
- In classrooms where the average gain was slight or negative, the teachers spent more time in "noninteractive" activities—grading papers, making lesson plans or monitoring the classroom, while students worked on written or silent reading assignments.
- In classrooms where little or no achievement gains were made, students spent more time in off-task activities.

Stallings' work has been translated into a series of workshops for teachers, and her comments about her work illustrate the importance of teacher-student interaction during the learning process:

> In each year of the study, we found that students made more gains in classrooms where teachers spent more time instructing, discussing homework, providing considerable supportive feedback, and having students read aloud in small groups. In this environment teachers stayed involved with students all the class period.

Stallings says effective teachers "get the show on the road" when the bell rings and stay supportively involved during the total period.

Teacher Cues

The NIE study and others also show that teacher cues—structuring the lesson and giving directions on procedures—are associated with student achievement gains.

Bloom (1976) estimates quality of cues amounts for about 14% of the variance in achievement between students.

A great deal of research has focused on the direct relationship between cues and learning. Among the findings:

Clear cues focus student attention. Cues in the form of objectives which describe and illustrate the specific behaviors and process that students are expected to acquire help student learning.

Goals help students organize their learning material and concentrate on relevant information.

Putting Research to Practice

Teachers in Murfreesboro, Tenn., have devised a way to put time-on-task research into practice in the classroom. As part of a project to test research results in the classroom, the teachers have developed a number of strategies to increase the amount of time students work.

For example, children keep a marker in their reading books so they can turn quickly to a new story, according to the Institute for Research on Teaching (IRT). Workbook pages are removed daily for checking, so children can start on the first page. A student who is having difficulty staying on task sits with those who have good work habits.

Teachers in the project are presented with research results on planning, time-on-task, classroom management and interpersonal relations and apply the ideas in their teaching (IRT, Michigan State U., East Lansing, Michigan 48824).

Questions

Teachers use questions during instruction to monitor student comprehension and to pace instruction. Researchers have estimated that between 300 and 400 questions are asked in a typical school day.

The frequency of factual questions in the classroom is positively related to students' performance on test items that measure factual knowledge. However, higher mental process questions do not relate to student achievement. In his review of the literature, Rosenshine concludes that questions requiring higher levels of thinking are unrelated to achievement.

This conclusion seems to contradict conventional wisdom. Other studies have found a positive relationship between the level of thinking required by teachers' questions and the cognitive process shown in students' responses. Gage notes that the explanation may be that the classroom is not the place for the quiet deliberation thought questions require. This explanation is also consistent with research that shows high-order questions are effective when encountered in silent reading.

Feedback and Correctives

In his theory of school learning, Bloom refers to three things essential to the learning process: a standard of performance; precise, relevant and valid evidence about what has been learned and what remains to be learned; and a set of corrective procedures by which gaps in learning or mistakes can be relearned or corrected. As Tamar Levin and Ruth Long note:

> To be effective, feedback evidence must be followed by a corrective process, the stage in which students are provided with additional learning opportunities to reach the preset standard. Used appropriately, corrective procedures help students improve their learning and take over the corrective functions themselves.

A great deal of evidence supports the contribution of feedback and corrective procedures to students' achievement. In a study by Levin, for example, two groups of students learned a set of concepts and rules in probability. Students in one group were required to score at least 85% on each unit and were given a series of instructive tests and corrective procedures. Students in the second group learned the same units but were not given formative tests or corrective activities.

At the end of the units, all students were given a final test of their ability to apply the rules. Students in the feedback and corrective group learned more than the other students and could apply the rules in new situations. But the ability of students in the control group to apply the rules changed very little.

Studies by James Block and Bloom of mastery learning (in which feedback-corrective procedures are essential components) show approximately 80% of mastery students attain the same high level of achievement as the top 20% of control students.

Evaluation

While the feedback and corrective procedure involves ongoing evaluation, a number of other devices are used by teachers, including grades and written comments.

Research shows grades alone may tell students whether they have reached an expected standard and where they stand in comparison with their classmates, but rarely indicate what they still need to learn. However, as Levin and Long note, "Comments in conjunction with grades or scores are likely to have a more substantial effect if, instead of being general and evaluative, they provide specific feedback information."

Encouragement and Criticism

Research concerning praise and criticism shows the effects of these variables on standard achievement depend upon the context in which they are used. Stallings found the most effective pattern of teaching behavior was acknowledgment and/or praise for correct responses and further probing by teachers when answers were wrong.

These findings are consistent with classroom climate studies which show the emotional climate in effective classrooms could be best described as neutral. Effective teachers are neither severely critical of students nor overly lavish in praising them.

The findings are also consistent with Brophy's view that praise does not always or necessarily serve as a reinforcer. Brophy found teacher praise is infrequent, noncontingent, general rather than specific and determined more by students' personal qualities or teachers' perceptions of students' need for praise than by the quality of student conduct or achievement.

Several studies on the early elementary grades suggest that praise correlates weakly but positively with student achievement in low socioeconomic classes, but does not correlate at all or correlates weakly but negatively in high socioeconomic or high-ability classes.

Brophy found teacher praise may be effective with low-ability students who have experienced failure, but with independent learners and/or high achievers accustomed to success, praise may not only be ineffective, but also may be counterproductive, at least if overused.

Gage also found effective teachers gave criticism only a small percentage of the time "and only with pupils of higher socioeconomic status."

Teachers Make a Difference

A number of teacher effectiveness studies of the 1970s refuted conclusions that learning depended almost entirely on student characteristics, so that the identity and behavior of the teacher were almost irrelevant. As Brophy notes, 1970s' research demonstrated some teachers are more effective than others in improving student achievement regardless of class composition or size.

Among other findings on teaching effects:

- **Teacher management abilities are clearly related to student achievement.** As Thomas Good states, "Teachers' managerial abilities have been found to relate positively to student achievement in every process-product study conducted to date."
- **The direct instruction model is associated with high achievement gains in basic skills.**
- **Effective teachers plan for success.** Mastery learning advocates usually require at least 80% success on assignments and tasks and advocates of programmed learning expect mastery to approach 100%. Brophy reports, "Classroom data support the latter position, indicating that teachers who program for 90-100% success rates on student assignments produce better student learning than teachers who tolerate higher failure rates." Brophy suggests that because learning is so dependent on mastery of concepts in sequential fashion, students must "overlearn" initial concepts in order to be able to apply them in new or high-order contexts.
- **Both large group and/or small group instruction are effective teaching methods.**
- **Effective teacher behaviors vary with particular contexts but generalizations can be made.** Brophy and others found that while teacher behaviors vary with individual differences and status characteristics of students, generalizations about effective teaching in particular contexts could be made. Among them:
  - Teachers of younger, less-intelligent and/or less-skilled students need to structure learning, give more detailed and redundant instruction and explanations, interact more individually more often with each student, elicit overt responses to questions and performance demands, provide individual feedback, divide seat-work assignments into small segments or devise ways to provide more frequent monitoring and corrective feedback and, in gen-

eral, continually direct and supervise learning activities.

- Older, brighter and more-skilled students can assume more of the burden for managing their own learning, especially once they have made the transition from learning the tools as ends in themselves to using the tools as a means to learning other things.
- Both cognitive and affective gains can be made by linking classroom rewards to social cooperation and interaction. Studies have shown both affective and cognitive gains can be made through team learning and cooperative structures.

Michael Cohen at NIE found that the effective elementary math and reading classroom is one in which:

- The teacher keeps students on academic task and the content coverage is extensive.
- The teacher and workbook questions are highly structured and elicit a relatively high rate of correct answers from students.
- The teachers and materials provide immediate, academically oriented feedback, praising correct responses and exploring incorrect ones.
- Instruction is provided to the whole class or to small groups.
- Teachers monitor student performance during recitation and provide individual feedback to students.

These features were found to be particularly important in heterogeneous classes in Title I schools in which there were large proportions of low socioeconomic status and minority students.

More Studies, More Proof

Although effective teacher behaviors vary with context, several studies have identified teaching behaviors which are common across grade levels.

One study examined the BTES data and found 21 classroom teaching behaviors which were significantly different between more and less effective teachers, regardless of grade level. (See summary chart.)

Some researchers have found effective teaching behaviors are different for low socioeconomic students than for middle or upper SES students. As Virginia Koehler of NIE points out, "Effective teachers in high SES schools . . . push their students to their limit, minimizing personal relationships and teaching in traditional ways. Effective teachers in low SES schools are patient and encouraging, and willing to develop personal relationships with their pupils."

Effective Teaching Behaviors

Effective teachers score high on these behaviors:

- accepting
- adult involvement
- attending
- consistency of message
- conviviality
- cooperation
- student engagement
- knowledge of subject
- monitoring learning
- optimism
- pacing
- promoting self-sufficiency
- spontaneity
- structuring

Effective teachers score low on these behaviors:

- abruptness
- belittling
- student defiance
- billing time
- illogical statements
- oneness (treats whole group as "one")
- recognition-seeking

(Adapted from David Berliner and William Tikunoff, "The California BTES: Overview of the Ethnographic Study.")

In his review of the research concerning effective teaching of reading and math to low SES students in grades 1-3, Donald Medley found:

- The effective teacher of low SES pupils . . . differs from the ineffective teacher in devoting more class time to task-related or "academic" activities.
- Effective teachers spend more time with large groups.
- Effective teachers ask more "lower-level" questions.

Summary of Findings on Effective Teaching:

1) Teachers make a difference. Certain teachers elicit more learning than others.
2) Several clusters or patterns of teacher behavior are consistently related to learning gains.
3) Effective teachers allocate more of their time for teaching.
4) Effective teachers know how to organize and maintain a classroom learning environment that maximizes the time spent on productive activities and minimizes time lost during transitions or disruptions.
5) Students taught under direct instruction do better than those taught with individual or discovery learning approaches in learning basic skills.
6) Efficient instruction provides both whole and small group instruction; is conducted at a rapid pace, involving small, easy steps; and builds in success rates of 75% for teacher questions and nearly 100% for independent work.
7) Approaches to instruction vary with context, particularly grade and ability level. Students in higher grades are expected to have mastered the basics, to use them to learn other things and to manage their own learning to a greater degree.
8) Indirect instruction, use of student ideas and high frequency of "on-task" student talk appears to be an effective teaching method for upper-grade students.

From "Advances in Teacher Effectiveness Research," Jere Brophy

- There is less deviant or disruptive pupil behavior in classes taught by effective teachers. The classroom climate is supportive and teachers maintain classroom control without criticism of student behavior.
- Effective teachers spend more time working with individual students.

In their study of fourth-grade mathematics instruction in predominately middle-class schools, Thomas Good and Douglas Grouws (1977) identified teachers who were consistently effective or ineffective as measured against their students' achievement gains on the Iowa Test of Basic Skills. The researchers found high achievement teachers presented students with clear a focus, provided developmental feedback when needed, structured a common seat-work assignment for the class and responded to individual students' need for help. They also had higher achievement standards and better management skills, used less praise, assigned homework more frequently and moved through the curriculum more rapidly than did the low-achievement teachers. Students also had more opportunities for immediate feedback and asked more questions. The researchers conclude:

> [Teacher effectiveness] appears to be strongly associated with . . . a) student initiated behavior; b) whole class instruction; c) general clarity of instruction and availability of information as needed . . . d) a nonevaluative and relaxed learning environment which is task focused; e) higher achievement expectations (more homework, fast pace); and f) classrooms that [are] relatively free of major behavioral disorders.

Good and Grouws developed an inservice program based upon those findings which showed participating teachers improved student achievement.

From "Advances in Teacher Effectiveness Research," Jere Brophy

Teacher Decisionmaking

Underlying human behavior, of course, are intentions and motivations. People behave the way they do largely because of their goals, judgments and decisions. It is not surprising, then, that another line of educational research has studied teacher thoughts, judgments and decisionmaking during teaching.

While teacher effectiveness research uses primarily correlational, observational and experimental studies, the research concerning teacher decisionmaking uses comments and data collected from teachers themselves.

As Richard Shavelson notes, teacher decisions are based upon a number of complex factors, including information about students, nature of the task, classroom and school environment, beliefs about education, conceptions of subject matter, cognitive style and planning style. The following generalizations about teacher decisionmaking are drawn from Shavelson's work and review of the literature:

- In planning, teachers concentrate on activities to keep students engaged during instruction, rather than the prescriptive planning model they are taught in teacher education programs (specifying objectives; determining student abilities; selecting and sequencing learning activities; evaluating outcomes). This occurs, Shavelson says, "because teachers must maintain a flow of activity during a lesson or face behavioral management problems."
- Class activities become mental scripts or teaching routines.
- While teaching, the teacher monitors the class, seeking cues, such as student participation, for determining whether or not the routine is proceeding as planned.
- Teachers commonly monitor the class by structuring, soliciting, responding and reacting to student questions and answers. Some researchers have found that teachers high in verbal ability, reasoning ability and conceptual thinking were more likely to generate alternative courses of action and use more complex decision strategies for monitoring and pacing than teachers who scored low on these measures.
- Teacher plans and pacing for high and low groups (in reading) vary greatly. "During interactive teaching, the high groups were paced as much as 15 times faster than the low groups. And student achievement in the high groups was correspondingly higher than in the low groups," Shavelson reports.

Summary

Some of the generalizations which can be made about effective teaching include:

- Effective teachers believe all students can learn and take responsibility to see that they do. This includes diagnosing student skill levels, assigning tasks of appropriate difficulty, providing clear and immediate feedback and evaluating student progress.

- Effective teachers keep students on task. They spend more time interacting with students—instructing, discussing homework, asking questions. They "get the show on the road when the bell rings" and keep students on task.
- Effective teachers use clear cues.
- Effective teachers are good managers. They know how to organize and maintain a classroom learning environment that makes up for time lost during transitions or disruptions.
- Effective teachers use both whole and small group instruction and monitor and pace instruction according to student needs and comprehension rates.
- Effective teachers program for success (build in success rates of 75% for teacher-directed questions and nearly 100% for independent work).

Some effective teaching behaviors vary with context. The following generalizations can be made about these types of behaviors:

- Teachers of younger and/or less-skilled students provide more structure; give more detailed and redundant instruction and explanations; interact more often with each student; provide more feedback; and continually direct and supervise learning activities.
- Teachers of older and/or more-skilled students enable students to assume more of the burden for managing their own learning, especially once they have made the transition from learning the basic skills needed to master other things.

Chapter 3

Which Method to Choose?

"There is nothing sacred about the normal curve," Benjamin Bloom says in *All Our Children Learning*. His work and that of others throughout the 1960s and 1970s led to successful demonstrations that all students can learn given adequate time and appropriate learning conditions. This mastery learning strategy developed from John Carroll's (1963) definition of aptitude as the amount of time required to master a learning task. Therefore, Bloom states that the basic strategy in mastery learning is to find ways to reduce the amount of time required for the slower students to master particular subjects. The time spread between "slow" and "fast" learners is about five or six to one, but through mastery learning the ratio can be narrowed to perhaps three to one, he says.

"No doubt at the beginning you do have to spend a lot of time to handle the great variations among students. But after a while there is very little variation in the amount of time required," Bloom says.

Mastery Concepts

Quality of instruction. In addition to **time**, quality of instruction is a key element in mastery learning. The mastery learning approach assumes that individual students may need very different types and qualities of instruction to achieve mastery, ranging from independent learning to highly structured situations.

Ability to understand instructions and to persevere are two other concepts which are important in mastery learning. The first concept is merely an individual's ability to understand the nature of the task to be learned and the procedures to follow to do so.

Perseverance—or the amount of time the learner is willing to spend in learning—is related to attitudes and interest in learning. These attitudes, Bloom says, are shaped in large measure by positive or negative learning experiences. Bloom finds that students are likely to spend more or less time on particular learning tasks depending on whether they find the effort rewarding or frustrating.

Selecting **tasks of appropriate difficulty**, then, becomes another important mastery learning strategy. Both teacher and learner must also know what the achievement criteria are and be able to gauge progress toward these criteria. Preconditions of learning include specific objectives and evaluation procedures. Since objectives are set in relation to performance levels rather than group standing, one by-product of mastery learning has been cooperative learning and peer tutoring rather than competition. Additional mastery learning concepts include brief **diagnostic tests** and **alternative learning resources** to help students correct errors and/or relearn material.

S. Alan Cohen (1980) and others, however, differ slightly from Bloom. They emphasize the importance of "high-intensity" learning materials to enable faster students to move ahead at their own pace rather than remain in a "holding pattern." Cohen says the difference between the fastest and slowest students ranges from 1% to 97%. Therefore, in schools where he has implemented mastery learning, each learning segment has at least 10 different paths. Cohen's approach to mastery learning is close to individualized instruction.

Outcomes. Bloom found that the best results using the mastery approach occurred in a course on test theory where teachers were able to review and alter strategies over a period of years. On the final test, 90% of the students achieved mastery of the subject matter tested. Bloom also found considerable affective gains with mastery learning. As students begin to master skills, for example, their self-concept, confidence and outlook toward school improve. But, more importantly, perhaps, teachers begin to raise their expectations for students as well.

And as Bloom notes, repeated success in school over a period of years appears to increase the likelihood that an individual can withstand stress and anxiety more effectively than individuals who have a history of repeated failure or low marks in school. Success in school seems to lead to better mental health.

On the other hand, Bloom and others caution that all subjects may not be suited to mastery learning. This is consistent with research findings which indicate that indirect instruction may be more effective with skilled and independent learners. However, mastery learning is not limited to learning in basic skills; it can be used to teach higher-level critical thinking and problem-solving skills. The trick in using mastery learning (or any other instructional approach for that matter) is not to **misuse** or overuse it and thereby reduce learning to a mechanistic ritual of simplistic tasks.

Local Examples

Throughout the 1970s a number of school districts designed and adopted district-wide instructional programs based on mastery learning. In many cases these programs were linked with school improvement efforts. Mastery learning programs in Denver, New York, Chicago, Philadelphia, Dallas, New Orleans and elsewhere have proven successful in raising student achievement levels in math and reading.

In Johnson City, N.Y., for example, scores on the Pupil Evaluation Program Tests show "nonachievers" in reading and math have been reduced to 1% in third grade and 7% or below in sixth grade. Gains at the top levels are extremely high. In third-grade reading, for example, the top group increased by 22% over previous levels. Average gains on the 1980 California Achievement Tests show first-graders were achieving a full grade above level; eighth-graders achieved nearly three grades above level. Because of its successful track record at the elementary level, this district implemented a mastery learning program at the secondary level in 1980.

In the Red Bank, N.J., schools, where mastery learning has been used since the late 1970s, test scores also have improved dramatically. Fifteen percent more sixth-graders passed the reading section of the New Jersey Test of Minimum Basic Skills in 1980 than in 1979.

In University City, Mo., students have made substantial gains on both the California Achievement Test (CAT) and the SAT. In the 1980 scores, ninth-grade students showed an eight-month gain in six months on the CAT, while 10th-grade scores showed one year's gain in six months. Moreover, while SAT scores dropped several points in 1980-81, scores are generally climbing in this district. Between the 1978-79 and 1979-80 school year, for example, SAT scores rose 14 points on the verbal and 24 points on the mathematics sections.

Chicago Model

The Chicago model—Continuous Progress/Mastery Learning (CPML) program in reading—is a K-8 program which includes materials for teaching reading comprehension and critical-thinking skills. Michael Katims, developer of the materials, says the average teacher does not give students instruction in reading comprehension which high achievers seem to develop at about Grade 6. Among these strategies: using syntactic cues, selecting idea units to aid in recall, identifying topic sentences and other organizational elements, drawing inferences, and developing test-taking strategies.

Other studies bear out Katims' contention. Reporting on observations in 24 reading classrooms, Dolores Durkin says that of nearly 5,000 minutes spent in classroom instruction only .63% or 28 minutes were devoted to comprehension instruction. The remainder of the time was devoted to what Durkin calls comprehension assessment or asking "who," "what," "when," "why" and "how" types of questions.

The CPML model assumes that poor readers can comprehend difficult materials if they are taught appropriate learning strategies and can learn from exposure to the learning/reading strategies of good readers, according to Beau Jones, a consultant to the Chicago public schools.

CPML is organized around 13 reading levels and 273 key objectives students are expected to master. The materials include both comprehension and skills units which teach word attack and study skills objectives. The materials are sequenced according to difficulty and include strategies for organizing information, solving problems and improving comprehension.

Jones says the CPML program at the pilot school (May School) was directly linked with overall school improvement. Student and teacher attendance, student behavior and school climate improved greatly as a result of student achievement gains made through the CPML program. Jones found that a "technology" for effective instruction can also produce more effective schools. Steps in developing this technology include:

- Marshalling resources to reproduce student materials for teachers who in turn can direct their attention to instruction.
- Setting high expectations through the explicit goal of a year's progress for each child.
- Training teachers in the use of the continuous progress materials.
- Monitoring class progress.
- Instituting an award system for mastery of particular reading levels.
- Welcoming parents as part of the instructional team.

Direct Instruction

Bartak Rosenshine and others define direct instruction as academically focused and teacher-directed, using sequenced and structured materials. Elements of direct instruction include:

- Teachers place a clear focus on academic goals.
- Teachers make an effort to promote extensive content coverage and high levels of student involvement in classroom tasks.

Focus on Outcomes

The American Assn. of School Administrators (AASA) has formed an organization of approximately 250 members—the Network for Outcome-Based Schools—to further develop and use mastery learning and competency-based instructional approaches. This group is composed of researchers and educators from across the country and Canada. The group accepts the following instructional premises:

- Almost all students are capable of achieving excellence in learning the essentials of formal schooling.
- Success influences self-concept; self-concept influences learning and behavior.
- The instructional process can be changed to improve learning.
- Schools can improve the learning conditions for all students if they:
  - establish a school climate which continually affirms the worth and diversity of all students;
  - specify expected learning outcomes;
  - expect all students to perform at high levels;
  - ensure that all students experience opportunities for personal success;
  - vary the time for learning according to the needs of each student and the complexity of the task;
  - have staff and students both take responsibility for successful learning outcomes;
  - determine instructional assignment directly through continuous assessment of student learning; and
  - certify educational progress whenever demonstrated mastery is assessed and validated.

For further information contact William Spady, 1801 N. Moore Street, Arlington, VA 22209.

- Teachers select instructional goals and materials and actively monitor student progress toward those goals.
- Teachers structure learning activities, and feedback is immediate and academically oriented.
- Teachers create an environment that is task-oriented but relaxed.

Thomas Good uses the term "direct instruction" to mean the teacher sets and articulates the learning goals, actively assesses student progress and frequently makes class presentations illustrating how to do assigned work.

Research findings concerning direct instruction include:

- Higher achievement gains are associated with orderly classrooms, persistent application to academic tasks, teachers' active involvement with students and a well-organized and structured learning environment.
- More structured programs are associated with greater student achievement than more open programs.
- Students of teachers who received training in principles of effective instruction (not direct instruction per se but similar elements) had higher adjusted achievement scores than students of control teachers.
- A model that attempted to increase third-grade teachers' use of direct instructional principles improved achievement where it was properly implemented. The model included structured teaching with an emphasis on academic activities and teacher direction and control of events. Also included were different tasks for less and more academically oriented students.

Other studies also show that teacher training programs based upon direct instruction techniques result in student achievement gains. Good found the direct instruction model seems to work because it strongly emphasizes the importance of the individual teacher and focuses on achievement.

The direct instruction model however, may not be suited to all students, particularly more skilled or independent learners. And if the ultimate goal is to help students "internalize structure" and begin to structure their own learning, then teachers must know how to gradually ease out of direct instruction.

As Good notes, "Too much structuring occurs when the teacher performs tasks that students are capable of performing themselves or when teachers present themselves as the major motivation for students performing a task."

Knowing when not to use direct instruction is as important as knowing when to use it, Good says. "When teaching older students it

might make more sense to introduce novel stimuli (because they have the basic skills and cognitive maturity to deal with them) and to spend less time on review and practice," he points out.

Moreover, direct instruction, like mastery learning, may be inconsistent with the goals of certain subjects such as art and social studies.

Formal Versus Informal Instruction

Research concerning the effects of formal versus informal instruction indicates that students in formal classrooms show higher achievement gains in reading and mathematics than those in informal settings.

In his review of comparisons between the two types of instruction, Gage notes a number of comprehensive studies, including:

- A study of "open" and "closed" schools in Canada which found that, in general, greater openness was more conducive to independence and favorable attitudes toward school, teacher and self. But student achievement was unassociated with program openness in largely middle-class schools and negatively associated with openness in low socioeconomic schools.
- A study of 100 fifth-grade children—50 enrolled in a traditional and 50 enrolled in an open school where students were "balanced" as to socioeconomic status, ability and previous achievement. After two-and-one-half years, the students in the traditional, or formal, school were found to have achieved higher scores in all nine areas of the Stanford Achievement Test. Further, the students in the formal school had lower levels of school anxiety.
- A large-scale study of the relationship of "innovativeness" to achievement by the American Institutes for Research, which found that not only were greater achievement gains made in programs with a more moderate emphasis on innovation (student decisionmaking, use of student evaluations, etc.) but the consistent overachievers also tended to be students in more formal programs or those with lower levels of innovation or individualization.

These findings are consistent with those of others who found that teachers who most successfully promoted gains in achievement were strong leaders. These teachers directed activities without giving their students choices; approached the subject in a businesslike way and

remained the center of attention. In contrast, the less successful teachers organized learning around the students' problems and joined or participated in student activities.

It must be kept in mind, however, that these findings apply to achievement gains in elementary reading and mathematics. Other studies have shown that where creativity was the desired outcome, rather than achievement, for example, low-ability students were more creative in traditional approaches and high-ability students were more creative in open approaches.

Student personality may determine whether or not direct or more open approaches will have the greater impact on achievement. One study, for example, found that students who had an internal "locus of control" (felt they had personal control over their successes and failures) achieved more in open approaches than in traditional ones. Others have pointed out that if educators want to achieve a wide range of educational objectives and if they want to meet the needs of all students, "then neither direct instruction alone nor open classroom teaching alone is sufficient." Recent experiments which have matched students' cognitive learning styles with teaching styles seem to support this conclusion as well.

Whole Group, Small Group, Individualized Instruction

Research findings concerning whole group, small group and individual instruction, while appearing to favor whole and small group over individual instruction, also suggest that a balance among all three types of "grouping" strategies is needed. By and large these are management strategies which vary according to the instructional method selected. Then, too, selection of one strategy over another depends on course content, desired outcomes and the skill levels of students.

Bloom points out that the ideal situation might be a tutor for every student, but this is impractical. As a form of enrichment and reinforcement for faster students, Bloom suggests peer tutoring. This not only makes the process more manageable, but also is based upon the notion that one never truly knows a subject until he or she tries to teach it to someone else.

Cohen, on the other hand, sees peer tutoring as forcing faster students into a holding pattern and reducing learning to the lowest common denominator. He advocates a highly individual approach.

"Allow the gaps between people to be as great as they turn out to

be. Increase individual differences," Cohen says. "In fact, when evaluating achievement resulting from a total curriculum, note the standard deviation first even before the mean."

Under Cohen's approach, the teacher becomes a helper and motivator rather than, as Cohen says, "a lecturer, deliverer of word lists, multiplication-table dispenser, giver of right answers and toilet passes." Yet Cohen's highly individualized approach fails to explain the tenacity of "direct teacher instruction" (whole group/recitation/seat-work).

Good suggests whole group instruction works because with limited resources, "it is the best compromise that a teacher can make." Moreover, it eliminates the managerial burdens of individual and small group instruction (moving from group to group, students finishing assignments and interrupting the teacher to find out what to do next). Then, too, he finds students in whole class or large group settings obtain more teacher modeling and explanation, perhaps a better understanding of why they are working on certain skills and a greater opportunity to have their errors corrected before they practice them repeatedly.

The solution to such apparent contradictions seems to be that not only are all three "grouping" strategies effective but all also should be used in varying amounts according to the abilities and needs of students. Similarly, no one teaching method can be used exclusively or in its extreme. To use the mastery learning example, the approach should not ignore individual instruction or overemphasize it to the point where students become socially isolated or their interactions with teachers become routine and mechanical.

These statements are consistent with research findings as well as actual classroom practice. Among them:

- Robert and Ruth Soar found achievement gains occurred in classrooms where teachers maintain an appropriate balance between self-directed and teacher-controlled learning activities.
- In another study one teacher who had grouped the class for mathematics instruction noticed that all of her students appeared to respond more favorably to a change from group to whole-class instruction. As the teacher reports, "The total-class instructional technique was effective. When it went well, it had a 'catching' effect on even the most reluctant learner. Perhaps to learn in small groups and by individualized instruction too much too long is a lonely experience for some."
- Jane Stallings reports, "Some students learn best when new information is presented to a small group of students who are operating at a similar pace. Learning occurs when students

read aloud, hear others read aloud, and hear others ask questions and respond. It appears that students need interactions with teachers."

During the last decade, considerable emphasis was placed on individual and programmed instruction but, as Good points out, "Despite the availability of material . . . individualization does not appear to be strongly associated with achievement."

Stallings indicates that "there has been a great disillusionment with individualized instruction," the approach worked "for some students and not for others," and that teachers felt "relegated to being recordkeepers."

Critique of Individualized Instruction

Barak Rosenshine of the U. of Illinois is skeptical of programs in which students work alone the majority of the time. "If a teacher has 20 kids and works with each one individually, that means each kid gets three minutes out of the hour—and he or she works alone 57 minutes out of the hour! If the student works directly with the teacher for 20 minutes, he or she may be ready to work alone the other 40 minutes."

Thomas Good of the U. of Missouri says if he were teaching fourth-grade mathematics, he would probably teach the class pretty much as a whole. "You can find teachers who use small groups who get very good results," he says, "but most teachers who use small groups instead of the whole class tend to fall toward the middle of the distribution." Good says an individual or smallgroup approach might work if the teacher and the school system have sufficient skills and resources.

Ethna Reid, director of the Exemplary Center for Reading Instruction, Salt Lake City, Utah, whose methods are praised by Rosenshine, says individual instruction can work if the program is teacher-centered rather than conducted in an open classroom setting.

***ASCD Update*, December 1980.**

Cooperative Learning

Team learning shows considerable promise not only for increasing achievement but also for improving such things as self-concept, positive intergroup relations and students' attitudes toward school.

The most extensively researched cooperative learning methods were developed by David De Vries, Keith Edwards, Robert Slavin and others at Johns Hopkins U. These include Student Teams-Achievement Divisions (STAD), Teams-Games Tournament (TGT) and Jigsaw II, in addition to many modifications and special purpose cooperative methods.

In STAD, the teacher first presents a lesson. Students then meet in four- to five-member teams to attempt to master a set of worksheets on the lesson. Students take quizzes on the material to make points for their team. (Scores are based on the improvement over the student's own past average.) The teams with the highest scores are recognized in a weekly class newsletter.

In TGT, students represent their teams in academic games where they compete with other students of similar past performance.

In Jigsaw II, each student in a five- to six-member group is given a unique piece of information on a topic the whole group is studying. After they have studied their section, students meet in "expert groups" with their counterparts from other groups to discuss their information. Students return to their groups to teach the others what they have learned. Finally, the students take a quiz on the material and the quiz scores are used, as in STAD, to form individual and team scores.

According to Slavin, 27 studies of cooperative learning programs have found a significant positive effect on student achievement, seven showed no difference and one showed a significant difference favoring the control group. A study of Group Investigation, a technique where students in small groups take substantial responsibility for deciding how and what they will learn, also shows positive effects on what the authors call "high cognitive-level" skills, such as analysis, evaluation and interpretation, but not basic skills.

In his review of the research Slavin makes the following observations:

- The positive effects of cooperative learning methods on student achievement are equal in elementary schools, in urban, suburban and rural schools and in subjects as diverse as mathematics, language arts, social studies and reading.
- Most studies show high, average and low achievers gaining equally from the cooperative experience. Four studies have shown somewhat greater gains for low achievers, two have

shown greater gains for high achievers and one found that students who preferred to cooperate learned best in a cooperative program, while students who preferred to compete did best in a competitive program.

- Researchers have hypothesized that the more tightly structured cooperative methods, such as STAD and TGT, will have the largest effects on basic skills, but higher-order cognitive skills may be best increased by more open-ended methods such as Group Investigation.
- It may be that a mix of cooperative learning methods is needed to improve different kinds of learning. For example, STAD or TGT could be used to teach such subjects as mathematics, language, science, foreign language and geography; Jigsaw or Jigsaw II to teach subjects like history; and Group Investigation to teach such subjects as science labs and social studies.
- Most of the intergroup relations research has found positive effects of student team learning methods on improving relationships between students of different ethnic backgrounds.
- Several researchers have found that cooperative learning improves relationships between mainstreamed and non-mainstreamed students.
- Some studies show that cooperative learning improves student self-esteem.
- One study found that emotionally disturbed adolescents who experience cooperative learning were more likely than students taught under traditional methods to interact appropriately with other students. (This effect was sustained five months after the end of the project.) It could also be that the student team learning strategy is successful because it contains elements of playful competition; it is competitive without being threatening. It also generates "on-task" student talk and makes learning fun.

The play aspects of team learning are worth noting. Block and others have begun to examine learning as play. Block finds that it is precisely the playful aspects of learning which are lacking in an overly individualized approach. "If students perceive learning as work then they are bound to be less enthusiastic about it," Block says. "But if they think of it as play then that is a very different matter."

Discovery and Inquiry

Discovery and inquiry methods remain important, particularly for students who have mastered the basic skills. Given the necessary

organizational and inquiry skills, students can learn to formulate problems and seek solutions. Moreover, they can begin to take responsibility for their own learning. Most educators agree that learning how to learn is one of the primary goals of education.

Neither discovery nor inquiry, however, should be confused with lack of structure or self-teaching by default. Teachers using either of these methods provide students with alternatives within a clearly defined structure and teach students the sequence or pattern of steps they need to follow to produce results. Also, teachers monitor student progress and guide them throughout the learning experience.

Cognitive Learning Styles

People learn in different ways. Some students learn better by listening, others by doing, others by discussing, others by working on their own. Recent research has attempted to identify these various learning styles and apply these findings in actual classroom situations.

While researchers in this field use slightly different terms and are exploring a number of concepts, two particular approaches appear to be common. One defines learning style in terms of **dependence** or **independence**; the other, in terms of **concrete** or **abstract** orientation. Both are concerned with how individuals perceive and process information and both indicate that individuals possess these characteristics to varying degrees. Also, most researchers in this area find that learning styles tend to be stable over time but can be altered by motivation or interest.

Manuel Ramirez and Alfred Castañeda, for example, are concerned with the degree to which a person is analytical. At one extreme are persons whose perceptions are strongly influenced by their surroundings. These persons are termed "field dependents." At the other extreme are persons who perceive items as separate or independent from the surroundings. These persons are termed "field independents."

In her review of the literature, Mary Fitzgerald finds field-dependent persons are often less analytical in their orientation and problem-solving approach. They are often more attentive to social cues, are more interested in people.

In contrast, field-independent persons tend to have a more impersonal orientation. In learning situations, the field-independent student is able to provide structure to an unstructured learning task; better able to learn in the absence of teacher feedback; is more active; and has better intrinsic motivation.

Various experiments which have attempted to match teacher and student learning styles have obtained positive achievement results.

As principal of the McKnight School in East Windsor, Fitzgerald and a Parent Study Commission set up a program which matched cognitive styles of teachers and students. Six curriculum models were established with the following characteristics: core curriculum in basic academic skills and concentration in the fine arts; child-centered; individual mastery learning; hierarchy of skills; "traditional"; and highly structured academic program for older students.

Using the Iowa Test of Basic Skills, Fitzgerald found there was a significant increase in achievement scores for students in grades one through five whose cognitive styles matched learning environments for a minimum of one school year. Four years later student achievement became far more significant. The students at the McKnight School outperformed all other elementary schools in the district on the Iowa Test of Basic Skills in all grades except one.

A study by Elsie Cafferty of teachers, sophomores and juniors in a selected high school showed a significant relationship between teacher-learner style and student grades. It was found that the greater the congruence between learner and teacher style, the higher the grades students received.

David Kolb determined that people who tend to be at a concrete end of a continuum sense and feel their way through learning. They enter into the experience. Others, those who tend to the abstract, think their way through. They tend to be observers. He also examined how people process information and found that some reflect and others jump right in and try by doing.

From these two extremes Kolb identifies four learning styles. Type One learners perceive through concrete experience and process through reflective observation. Type Two learners perceive through abstract concepts and process through reflective observation. Type Three learners perceive through abstract concepts and process through active experimentation, while Type Four Learners perceive through concrete experience and process through active experimentation.

Adaptive Learning Environments

The Adaptive Learning Environments Model (ALEM) is an individualized program to foster the development of students' sense of

personal control. ALEM has been field-tested during the past decade at the Learning Research and Development Center of the U. of Pittsburgh. The program includes highly structured prescriptive instruction in basic skills and informal education designed to generate inquisitiveness, independence and social cooperation.

The basic skills portion of the program in math and reading is based on a continuum of instructional objectives tailored to each student. Diagnostic and skill mastery tests are used. Students are also able to "self-schedule" exploratory tasks of their own choice, learning the skills needed for choosing, planning and carrying out tasks with minimal teacher supervision. The program is not totally individualized, however, in that the teacher may schedule time for small or whole group instruction in such subjects as music, art and physical education.

The model is built upon research which suggests that "internal locus of control" tends to be associated with positive attitudes toward mastery and competence in both children and adults. People who believe they can control their destinies, says the research, are likely to use previously learned skills in acquiring new ones, actively try to change their environment, resist group pressures and remain aware of information that might affect their behavior in the immediate future.

In her review of the research, Margaret Wang of the U. of Pittsburgh, makes the following points:

- Internal control is positively related to degree of classroom participation, academic performance, scores on academic achievement tests and the ability to delay gratification.
- Students' sense of personal control is related to the tendency to seek information and use information in problem-solving.
- Students with internal control are more attentive and learn more than do students with external control.
- Students who believe they can influence their learning are more likely to succeed in school than those who believe their learning is controlled by "powerful others." These students are also active, assertive and exhibit a high degree of exploratory behavior and excitement about learning.
- A number of studies have shown that special instructional strategies can change an individual's locus of control. For example, students in the early elementary grades who were taught to assume responsibility for their learning not only showed a significant increase in task completion rates but also developed a greater sense of personal control.

Self-management skills include the ability to plan and carry out routine classroom management tasks and organize information for

learning and retention; to research, order and organize information; to break complex tasks into meaningful and manageable subparts; and to set realistic goals and estimates for the amount of time and effort required to complete tasks.

Wang conducted a series of studies concerning the effects of this self-schedule system and found:

- Students were on task most of the time.
- Compared to control groups, students interacted with teachers more frequently for instructional purposes than for "management" purposes. Students given the responsibility to manage their learning spent little time waiting for teacher help, a behavior cited as one of the management problems for many individual instructional programs.
- Students completed significantly more tasks than those in the control groups where subjects were scheduled in blocks by the teacher.
- In one study of two third-grade classes, student achievement on the Metropolitan Achievement Test was approximately one-half grade higher for the self-schedule groups taught under traditional methods.
- Students' sense of personal control was found to be positively related to self-management skills, task completion rate and on-task behavior.

One case study involving a multi-age primary classroom with both high- and low-achieving students is particularly interesting not only because the majority of students from this class were working one grade level ahead in math following the completion of the program but also because high- and low-achieving students had a strong partnership in learning. (In this study of 'mainstreaming,' low achievers were defined as students whose standardized achievement scores were at or below the 25th percentile and high achievers were defined as those students who scored at or above the 90th percentile.) Low achievers reported that they asked high achievers for instructional help. Similarly, high achievers reported a significant number of contacts with low achievers. Other findings from this study include:

- While 76% of all teacher interactions with high achievers were for instructional purposes, only 52% with low achievers were for instructional purposes. Management interactions between teachers and low achievers were much higher (47%) than the percentage of management contacts between teachers and high achievers (13%).
- Low achievers were found to work on assignments primarily by themselves (64%), while high achievers seemed to work

individually only 29% of the time. On the other hand, high achievers appeared to work in groups much more frequently (60%) than low achievers (28%).

- During the year of the study, the average score of the low-achieving group moved from below the 25th percentile in reading and math to the 50th percentile in reading and the 40th percentile in math. The high-achieving group scored in the 89th percentile in reading and the 93rd percentile in math at the end of the year.
- Low achievers independently completed their assigned tasks as well as high achievers.

As Wang suggests, the study indicates that self-management skills help students organize and accomplish more. They also encourage students to actively seek information to complete assigned tasks. This includes asking other students for help and/or helping other students.

Seven school districts are field-testing the adaptive learning model. This effort—the LRDC Follow Through Program—is a cooperative endeavor between the Learning Research and Development Center, the U.S. Dept. of Education and school districts in Arkansas, Iowa, Minnesota, North Dakota, Ohio, Pennsylvania and West Virginia.

Exemplary Reading Instruction

Ethna Reid's Exemplary Center for Reading Instruction (ECRI) in Salt Lake City began as a modest effort to discover how to teach reading. The highly successful program has since been accepted as a National Diffusion Network project by the U.S. Dept. of Education and includes a teacher training component.

Although essentially a mastery-learning strategy, the ECRI differs from both Bloom's group approach and Cohen's highly individual approach. Students work in small groups as well as individually in reading comprehension, creative writing and other areas. The method also empasizes oral responses in both group and individual work. Reid found that Carroll and Bloom "are mistaken when they say (additional time or practice) is the key to helping all to master learning." Instead, Reid's method attempts to increase the number and speed of student response.

Through numerous studies Reid has found that frequency and rate of response is a key element in learning since students learn by building on past responses. One study at ECRI (Douglas Bates, 1971) measured the amount of time in which students were not given an opportunity to respond. Percentages ranged from zero to 5% in ECRI

reading classes to 50 to 80% in "traditional" classrooms.

"Teachers work to increase the number and rate of student responses, and they impose time limits," Reid says. Reid says the ECRI classroom emphasizes written expression, use of language skills and group responses to increase each student's learning. Moreover, as response rate and proficiency in oral and written language increases, Reid found students have more time for other learning activities.

"It is true that teaching for mastery in language instruction takes more teacher and pupil time than is usually spent in conventional classrooms, but greater proficiency in students' use of oral and written language creates opportunities for more, not less participation in other activities," Reid says. Also, teachers expect mastery in "creative comprehension and creative writing instruction." Concepts are developed first with concrete, sensory experiences; second, with vicarious or laboratory experiences; third, with audio and visual devices; and lastly, through words, both spoken and read.

From "Strategies for Mastery Learning" by Ethna Reid

Pupils need teachers who:

1. Supervise individual practice time and do not allow procrastination.
2. Provide time for practice, increase the rate of correct responses and eliminate lapsed time between responses.
3. Prompt (model, demonstrate) so pupils respond correctly . . . and gradually fade prompts until they respond correctly independent of the teacher.
4. Elicit responses from pupils. Allow them to do and say.
5. Correlate language arts activities to increase number and types of responses.
6. Diagnose and prescribe instantly when incorrect or no responses occur.
7. Believe students can learn. Expect high mastery (95-100%) levels with rate as a criterion. Allow students to move on in skills sequences as rapidly as they achieve mastery.
8. Use behavior management techniques which most effectively extinguish incorrect responses, reinforce correct responses and maintain them at the rate and mastery levels established.

What Brain Research Shows

Brain researchers have found that the two halves of the brain, the right and left hemispheres, process information differently. The left mode deals with intellectual, analytical, verbal, logical and sequential processing while the right mode involves intuitive, visual-spacial, subjective, unstructured and random open-ended processing. Researcher Bernice McCarthy finds that both kinds of processing are equally valuable but schools tend to concentrate on the left brain while ignoring the development of the right.

She has created a teaching model—the 4 MAT System— to combine the four major learning styles Kolb identified and the left and right mode processing techniques.

McCarthy finds Type One learners learn best through discussion, listening and interacting; Type Two learners, through lecture and the examination of data; Type Three, through hands-on experiences; and Type Four, through self-discovery.

The area of cognitive learning styles promises to be one which will receive considerable attention in a number of school districts during the 1980s. Many instruments exist for determining both student and teacher styles, and "matching-styles" experiments conducted thus far appear to result in achievement gains for students. Yet the caveat in all of this is that many researchers (Kolb, McCarthy and others) warn there are great dangers in the misuse of learning style concepts.

"We must avoid turning these ideas into stereotypes used to pigeonhole individuals," Kolb says. "Futhermore, we should not deny students the opportunity to develop themselves fully by only exposing them to educational environments that match their strengths."

McCarthy's system is built on exposing students to all four learning modes: "We need to train both the intellect and the imagination, to lecture and to encourage hunches as well as observable data, to see the forest and the trees, and to help our students find answers that lead to better questions," she says.

This approach seems highly sensible since students will have to deal with all types of people and circumstances in the world outside the classroom. Also, it mirrors the practices of effective teachers who do not overemphasize one or two approaches but use a variety of techniques and strategies.

From the research on the brain, Leslie Hart has the following suggestions for teachers:

- **Make the classroom a secure place.** The evolutionary history of the brain suggests that the cerebrum—the part that controls higher-level thinking processes—operates more slowly than the older, more instinctual part of the brain. These older mechanisms maintain a certain dominance and, under threat, override and inhibit the newer, more advanced brain processes. Hart says teachers need to make students feel secure in more sophisticated thinking processes. If students feel that they are being held "captive" in the classroom, teachers might allow more freedom of movement. Hart suggests students who are angry or upset be permitted to withdraw to a quiet area until they are ready to rejoin the class. Hart says teachers can further contribute to students' sense of security by showing them respect, speaking to them politely, and being a willing, unhurried, calm listener.
- **Encourage talking.** Hart points out that the cerebrum composes about five-sixths of the human brain and a large portion of the cerebrum is dedicated to language. "Studies of the brain indicate that talking plays an essential role in learning . . . . "Teachers who allow their students the freedom to talk—by arranging the room so that pairs or small groups of students can talk together as they do their assignments—will both aid learning and improve the most basic of skills: communication."
- **Introduce, and maintain, reality in the classroom.** Hart argues that teachers should expose students to as many experiences as possible. "The more children are exposed to, the more effective will become their program-storing and pattern-detecting abilities . . . ."
- **Set distinct learning goals and verify student mastery.**
- **Share learning time.** "Classroom management, discipline, teacher burnout, student failures—these are all problems inherent in the teacher-does-everything approach. Permit and encourage students to use their brains actively to learn, and the results can be astonishing."

From "Don't Teach Them: Help Them Learn," *Learning*, March 1981. —Leslie A. Hart

Brain Growth Stages

Herman Epstein, professor of biophysics, Brandeis U., has shown that in approximately 85% of all children, the human brain grows in stages centered at the ages of 2 to 4, 6 to 8, 10 to 12 and 14 to 16. Epstein suggests that children show appreciable changes in the complexity of their thought processes, beginning about the time of each brain-growth stage. Moreover, these stages correspond to Piaget's cognitive levels.

Epstein says if slow brain growth is paralleled by slow mental development, it might explain the ineffectiveness of such programs as the Head Start Program (for children between the ages of 4 and 6) and the difficulties junior high school students encounter (ages 12 to 14). "Children should not be pushed to rise very much in cognitive levels during these years" Epstein says, "but instead, might be encouraged to develop and consolidate skills already initiated."

Conrad Toepfer of State U. of New York at Buffalo also suggests these periods of "no growth or plateau" may explain why some students seemed turned off to learning. Moreover, sex differences in the brain growth stages appear to indicate that girls outgain boys three to one in brain growth between the ages of 11 and 12 while boys reciprocate this growth between the ages of 14 and 15.

"If you look at the point at which we begin to teach serious study in analytical and theoretical areas, which are mostly math and science in schools, it's between the ages of 14 and 15 in the high school," Toepfer says. "Now it may not be by discrimination but just by dumb luck that we have offered these things to boys when they have this prime readiness."

Toepfer suggests that it might be a good idea to try an experiment which would teach girls between the ages of 11 and 12 analytical and theoretical areas (math, science and social studies.) The next step would be to reinforce these skills between 12 and 14 to see if performance levels increase.

Summary

- Effective teachers use a variety of teaching methods.
- A number of instructional methods have proven to be effective in raising achievement levels in math and reading. These include mastery learning, direct instruction, cooperative learning and adaptive learning. Because these methods focus learning and emphasize success they have been associated with

positive student attitudes toward learning. The cooperative learning method has also been found to be an effective strategy for building positive intergroup relations.

- Discovery learning, inquiry, group investigation, open instruction, the Socratic method and indirect instruction appear to be more effective with students who possess the basic skills and are more capable of independent learning.
- The research suggests that selection of appropriate methods varies with the content and objectives of the subject to be learned as well as the skill levels of students. Appropriate methods also vary with the degree to which students can take responsibility for their own learning.
- Research also shows that cognitive learning style and brain growth development affect the learning process. Studies conducted thus far show students can make significant achievement gains when teacher-student learning styles are matched in terms of how they perceive and process information. However, many researchers caution that students should be exposed to all types of learning styles.
- Research concerning brain growth suggests skills should be introduced or reinforced at certain ages.

Chapter 4

Classroom Management

Teachers are managers of both instruction and people (students). Effective teachers establish a classroom climate conducive to learning, and as managers of instruction, teachers establish guidelines, communicate expectations, establish routines and pace instruction according to student needs.

Teacher expectations about student ability to learn are crucial to establishing a climate where students feel they can achieve. Moreover, because teachers serve as role models for students, their self-concept, attitudes about learning, methods of learning and attitudes toward people are likely to be shared and mimicked by students.

Thomas Good and Jere Brophy have identified basic attitudes and expectations teachers must have if they are to manage classrooms effectively and set a tone conducive to learning. Among them:

- **The teacher should enjoy teaching.** "Teachers who do enjoy their work will show this in their classroom behavior. They will come to class prepared for the day's lessons and will present lessons in a way that suggests interest and excitement in promoting learning. They will appear eager for contact with students, will keep track of their individual needs and progress, and will take pride and satisfaction in helping them overcome learning difficulties."
- **The teacher's main responsibility is to teach.** As Good and Brophy point out, at times the teacher will serve as parent surrogate, entertainer, authority figure, psychotherapist and recordkeeper, but at no time should these roles be allowed to overshadow the teacher's basic instructional role.
- **The teacher must understand that the crucial aspects of teaching are task presentation, diagnosis, remediation and enrichment.** Effective teachers understand that their primary role is to diagnose, prescribe and monitor instruction based on student needs, not their own need to provide dazzling lectures or demonstrations.
- **The teacher should expect all students to meet at least the minimum specified objectives.** Teachers with appropriate attitudes will spend extra time working with students who are having difficulty and will be supportive and patient.

- **The teacher should expect students to enjoy learning.**
- **The teacher should expect to deal with individuals, not groups or stereotypes.**
- **The teacher should expect to be obeyed.** "Obedience is usually obtained rather easily by teachers who establish fair and appropriate rules, who are consistent in what they say, who say only what they really mean and who regularly follow up with appropriate action whenever this is necessary," according to Good and Brophy. Teachers who behave in this fashion establish credibility and respect.
- **The teacher should expect some difficulties.**

Concerning modeling behavior, Good and Brophy also find that if students perceive discrepancies between what a teacher says and what he/she actually does, students will ignore what is said. Also, if they see discrepancies between what is demanded and what is actually allowed, they will do what is allowed.

In addition to general behavior, students will also follow the teacher's lead in logical thinking and problem-solving behavior; curiosity and interest in learning for its own sake; social values and attitudes, including rational control of behavior and respect for others; interest in people and in building a cooperative learning environment; and listening and communication habits.

Other researchers have indicated the important role teachers play as models for students. In *Fifteen Thousand Hours*, for example, Michael Rutter stated, "Pupils are likely to be influenced—either for good or ill—by the models of behavior provided by teachers both in the classroom and elsewhere."

As Rutter found in his study of secondary schools in London, positive teacher behaviors such as arriving at class prepared to teach, working cooperatively with other staff members attending to individual students and giving students responsibility were associated with better student behavior and school attendance.

Managing Instruction

Prior to and during instruction, teachers use a number of management techniques to keep students actively engaged in learning—and prevent disciplinary problems. Chief among them is planning for effective instruction.

Jacob Kounin studied successful and unsuccessful classroom managers and found that in most cases, student inattention and misbehavior could be traced to discontinuity in the lesson caused by inadequate teacher preparation. Lessons of effective teachers, on the other hand, proceeded smoothly and at a good pace. Effective teachers prepared materials and "props" in advance and did not waste time during the lesson on these tasks. Moreover, these teachers prepared seat-work activities which were at an appropriate level of difficulty for students and included variety to combat boredom.

These findings, says Brophy, suggest that classroom management problems will be caused by anything that results in delays or confusion. Good and Brophy have identified a number of these factors, including:

- **Traffic patterns.** Classrooms should be arranged so that traffic can flow freely. Supplies and equipment should be stored as near as possible to the activity areas in which they are used.
- **Bottlenecks and lines.** Since problems are especially likely to occur when students are standing in lines, they suggest a number of things teachers can do to minimize waiting time. These include delegating authority to monitors for housekeeping tasks such as passing out supplies or taking attendance.
- **Student independence and responsibility.** Teachers can minimize problems by preparing the classroom and enabling students to handle everyday housekeeping tasks and instructions on their own without needing to consult the teacher or be supervised. As Brophy notes, notices giving instructions or rule reminders can be displayed prominently in activity centers, so that students will not necessarily have to come to the teacher for help.
- **Back-up activities.** Effective classroom managers will have contingency plans for what to do when scheduled activities are cancelled. They also will have a number of activities for students who complete their assignments.

Good and Brophy also identify general management principles which apply to classroom management. These assume students will more likely follow classroom rules when they understand and accept them, management should be viewed as a means of controlling students, the teacher's goal is to develop inner self-control in students, and teachers will have fewer discipline problems if their students are regularly engaged in meaningful work geared to their interests and aptitudes.

Preventive preparation will cut down the need for teachers to spend time on routine classroom management problems and, as

Brophy notes, the time spent initially in establishing and teaching routine procedures to students will pay off in the long run.

"Good preparation frees teachers from needless interruptions, minimizes students' frustration and enables teachers to concentrate on acting as instruction leaders rather than authority figures," according to Brophy.

Group Management

Kounin has identified several techniques associated with effective classroom management. Like adequate preparation, these techniques are essentially used to engage students in learning activities as much as possible.

Kounin uses the term "withitness" to describe teachers who remain continuously aware of what is going on in all parts of the classroom and communicate this awareness to students (the proverbial teacher with "eyes in the back of his head"). These teachers position themselves physically so that they can monitor all students, scan the class frequently to keep track of what is going on and intervene when necessary to prevent minor inattention from escalating into major disruption. Even while working with individuals or small groups, "withit" teachers are monitoring the entire class.

Effective classroom managers are also able to overlap activities, according to Kounin. These teachers do several things at once, such as circulate around the room to give assistance or directions to different students or groups or respond to individual requests for help while keeping track of the reading or recitation of an individual in a group.

Kounin found that "smoothness of transitions" between activities and within sections of activities are important in maintaining student attention. Not only are transitions of effective teachers smooth because they have established clear routines and organized materials but also because they give students clear directions or instructions.

Another aspect of effective management noted by Kounin is "group alerting" or teacher behavior designed to maintain or reestablish attention during lessons. This includes looking around the group before calling on someone to recite; keeping students in suspense as to whom will be called on next; getting around to everyone frequently; interspersing choral responses with individual responses; throwing out challenges; and presenting novel or interesting material.

Another key element of management is what Kounin calls "timing" or the ability to spot potential problems and intervene early (for example, physically moving toward a region of possible problems).

Early intervention demonstrates to students the teacher's tactical skill. Also, effective classroom managers are able to time activities and contacts with individual students to suit the demands of managing the entire group. They are able to control the flow of activities.

In a correlational study of second and third grades and in an experimental study of first-grade reading groups, "withitness,"overlapping and smoothness of lesson pacing and transitions resulted in better achievement.

Regardless of context, however, Brophy finds that positive approaches for capturing attention such as building interest or stimulating curiosity, are preferable to approaches that depend on embarrassment or failure. Ideally, if lessons are interesting and challenging to students and the teacher is well-prepared this should be sufficient for most students.

Walter Doyle—who views the teacher's central management task as gaining and maintaining cooperation in classroom activities—finds that student cooperation depends upon demand. When teachers demand a lot, not all students can participate because the tasks often are limited to high-ability students. Where demand is too high or too low, students will be frustrated and classroom management problems will result.

Doyle also identifies techniques teachers use to monitor the classroom. These include avoiding strong emotional reactions to classroom events; paying attention to student "concealment strategies" (for example, covering the mouth, whispering, hiding behind desks); and making activities routine to reserve attention for other matters, including "sizing up" the behavior of students.

He finds that teachers appear to use what is called the "steering group" (low-achieving students, primarily those in the 10th to the 25th percentiles) to pace both instruction and monitor level of cooperation. "Steering-group members signal the maximum amount of cooperation that can be expected for an activity," according to Doyle. He also notes that since the steering group "probably" contains students most likely to initiate behavior problems, monitoring this group also increases the likelihood teachers will spot early warning signs and squelch potential problems before they develop. Effective classroom managers intervene early and prevent diverting behavior from spreading to other students.

Doyle finds that the choices teachers make concerning academic tasks, the arrangement of space and the scheduling of activities are dependent on the complexity of classroom demands and the probability of securing students' cooperation. Effective classroom managers, in Doyle's view, select content, seating arrangements and activities to

increase the likelihood of cooperation from the greatest number of students.

Coping with Behavior Problems

A number of studies have shown it is not always advisable for teachers to intervene every time they notice a problem. In some cases the disruptive effect of teacher intervention can be greater than the problem being dealt with. Good and Brophy suggest strategies for dealing with minor misbehavior: eye contact; touch and gesture (early grades); physical closeness (moving to the trouble spot); and asking for responses to return student attention to the matter at hand.

Kounin found that brief, soft reprimands were more effective than harsh teacher reaction to student misbehavior and were more likely to have positive ripple effects (decreasing the likelihood of similar misbehavior by other students). Similar results were reported by K. Daniel O'Leary and others who manipulated soft and loud reprimands experimentally. They found that teacher reprimands should be avoided when possible, but minimized in length and intensity when they are given.

Good and Brophy say there are two ways for teachers to intervene directly. Teachers can demand appropriate behavior or remind students of rules. "Such intervention should be brief and direct," they state, "and it should stress appropriate behavior rather than misbehavior." On the other hand, teachers should not ask questions; should avoid threats and appeals to authority; and should not dwell too much on misbehavior by nagging.

If, on the other hand, the teacher must ask questions of students because more information is needed (as in establishing the facts in a dispute), he or she should confine the discussion to the students directly involved. Students should be questioned individually and objectively, according to Good and Brophy.

The researchers also suggest that if punishment must be used, it should only be used in dealing with repeated misbehavior. Even so, punishment can only reduce or control misbehavior; it does not teach desirable behavior. Generally, they suggest punishments such as behavior restrictions, limitation of privileges and exclusions from the group should be used because they allow opportunities for students to redeem themselves and restore their normal status in the group. They also offer suggestions for dealing with more serious problems: do not isolate the student or label him or her as a unique case; stress desired behavior; focus on the student's school-related behavior; and build a close relationship with the student and use it to learn his/her point of view.

Management Techniques

- Establish clear rules where rules are needed. The rules should be explicit and the rationale for them should be explained.
- Let the students assume independent responsibility.
- Minimize disruptions and delays.
- Plan independent activities as well as organized lessons.
- Encourage effort. Students should know that they will learn the most by doing as much as they can for as long as they can and that they should not come to the teacher at the first sign of problems.
- Stress positive, desirable behavior. Students find learning easier and more pleasant when someone is showing them what to do rather than what not to do. Teachers should phrase instructions in positive specific language that clearly indicates the desired behavior.
- Recognize and reinforce desired behavior. Praise should be simple and direct. Ordinarily individual students should be praised privately. It is a good idea to show appreciation for student's accomplishments and help in a public way, but without carrying through to the extreme of praising them.
- Focus attention when beginning lessons. Teachers should develop a predictable, standard way of introducing each type of lesson.
- Keep lessons moving at a good pace.
- Monitor attention during lessons. Teachers who bury their noses in their manuals, rivet their eyes on the board or look only at the student who is reciting or answering questions are asking for trouble.
- Maintain accountability. With older students teachers should develop variety and unpredictability in asking questions. With younger students Brophy and Evertson found that teachers who called on students in a particular predictable order got better results than those who called on students to read randomly.
- Stimulate attention periodically. Lectures should be mixed with demonstrations, group responses with individual responses and reading and short factual questions with thought-provoking discussion questions.
- Terminate lessons that have gone on too long.

Looking into Classrooms,
Thomas Good and Jere Brophy

Behavior Modification

Classroom managers frequently draw on principles from general social learning theory, including behavior modification. The work of B. F. Skinner and others, for example, established the following principle: Reward desirable behavior and ignore or if necessary punish undesirable behavior.

According to O'Leary, procedures for increasing desired behaviors include praise and approval, modeling, token reinforcement programs, programmed instruction, self-reinforcement, clear rules and directions. Procedures for decreasing undesirable behavior include self-reprimands, relaxation (for fears or anxiety), self-instruction and self-evaluation.

The problem sometimes is in knowing what types of reinforcers to use with individual students. Some researchers point out elaborate behavior modification systems are impractical since educators are limited in their access to reinforcers powerful enough to shape student behavior and few reinforcers retain their ability to motivate behavior over time. On a smaller scale, however, effective classroom managers do use behavior modification techniques and may use both "intrinsic" and "extrinsic" rewards.

A few studies are beginning to identify what students consider to be effective reinforcers. Sandra Rosswork found the setting of goals, especially specific and difficult goals, was more effective than monetary incentives in producing high levels of performance. Goal setting was also more effective than vague encouragement. Rosswork suggests that although extrinsic incentives may be necessary when a task is not meaningful to students, goals and goal setting are probably more important for meaningful tasks.

In a study by Barbara Ann Ware, the importance of meeting personal goals was also emphasized by high school students. Students ranked this item as their first choice in a list of rewards, followed by school scholarships; compliments and encouragement from friends, being accepted as a person, or having their opinions sought. Rewards such as peer esteem and symbolic recognition ranked above teacher praise and concrete rewards.

Counseling and Psychotherapy

Teachers use a variety of counseling and psychotheraphy techniques. William Glasser's widely know "reality therapy" is a 10-step process for dealing with students who are discipline problems:

- List typical reactions to the student's disruptive benavior.
- Analyze the list and see what techniques do and do not work, resolving not to repeat the techniques that do not work.
- Improve relations with the student. Provide extra encouragement, ask the student to perform special errands or make other initiatives to show concern about the student and imply that things are going to improve.
- When the problem behavior reappears, ask the student to describe what he or she is doing. Once the student describes his behavior accurately in response to teacher questions, simply ask the student to stop it.
- If the problem persists, call a short conference and ask the student to describe the behavior and state whether or not it is against the rules or informal expectations. Ask the student what he/she should be doing instead.
- If this does not work, a conference must be called to get the student to focus on a plan to correct the problem. The plan should state positive actions the student will take to eliminate the problem.
- If this does not work, isolate the student or use time-out procedures. Isolation should continue until the student has devised a plan, gotten it approved by the teacher and made a commitment to it.
- The next step is in-school suspension. Parents should be notified about in-school suspension if it continues beyond a single day, but it should continue for as long as is necessary to get an acceptable plan and credible commitment from the student.
- If the student remains out of control, notify parents, send the student home and start over the next day.
- The last step is removal from school and referral to another agency. Even here, Glasser recommends welcoming such students back to school if they make specific plans and a credible commitment later.

Another method which has wide acceptance among teachers is Thomas Gordon's Teacher Effectiveness Training. Gordon's techniques stress problem-solving and negotiation of a "no-lose" arrangement. Techniques include active listening, the use of "I care" messages and problem-solving (define the problem, generate possible solutions, evaluate these solutions, decide which is best, determine how to implement the decision, and assess how well the solution is in fact solving the problem).

Leadership Styles

Classroom managers frequently draw on social psychology and management theory in developing leadership style. A study by Ralph White and Ronald Lippett demonstrated the effects of three particular leadership styles—autocratic, democratic and laissez faire—on task-oriented groups of 10-year-old boys. Authoritarian leaders gave orders, determined work tasks and assigned boys to the tasks. Democratic leaders took time to solicit opinions and achieve some consensus about what to do and how to do it. The laissez-faire leaders did not lead at all and gave only vague directions and answers to questions.

Although the quantity of work in autocratic groups was slightly more, the quality in democratic groups was consistently better. Moreover, boys in democratically led groups developed warm feelings for one another and the leaders and enjoyed the experience. Boys in the authoritarian-led groups, on the other hand, showed tension and generally negative feelings toward one another and the leaders. The laissez-faire groups did not succeed in either goals or achieving a satisfactory experience. These findings have been corroborated by similar experiments and in industrial as well as classroom settings. It is important to note, however, that the democratic model does not assume that students or workers should vote on every decision. The teacher or leader is still in a position of authority and responsibility, speaks as an experienced and mature adult and retains ultimate decision-making power.

Many modern behavioral scientists advocate a democratic, participative approach. Abraham Maslow, for example, extended his theory of motivation to emphasize the importance of providing an organizational environment in which the individual can achieve maximum "self-actualization."

Findings from the Goldstein and Weber study show a negative correlation between time-on-task and authoritarian and permissive classroom management approaches. Other findings in this report, including those concerning cooperative learning approaches, clearly support the notion that effective teachers are democratic classroom managers.

Other theorists tend to support this view. William Spady and Douglas Mitchell, for example, find that authority is rooted in personal orientations and experiences. Students, therefore, respond when they "perceive in an encounter the opportunity to realize their own significance, not merely to satisfy the intentions of someone else because of the attractiveness or threat of external resources." Spady

and Mitchell say the main problem in classroom control is to "imbue the roles, goals and activities of the classroom with legitimacy by creating for students a sense of the intrinsic value and significance of the behaviors expected from them."

Effective classroom managers use moral, psychological, contractual and technical resources to involve students in learning experiences. Their attitude is "supportive and collaborative" rather than competitive or coercive and they are perceived as **authoritative** rather than **authoritarian.**

Summary

- Effective teachers are good managers of instruction and people. They use a variety of management practices including setting a classroom tone or climate conducive to learning, preventing disciplinary problems through planning, minimizing disruptions and delays, monitoring student attention and establishing clear rules and expectations.
- Effective teachers use group management skills such as "withitness," overlapping, routines, smooth transitions, group alerting and timing.
- In dealing with behavior problems, effective teachers use subtle techniques such as eye contact and moving to the trouble spot or more overt behavior such as brief and direct statements about appropriate behavior.
- For more serious behavior management problems, effective teachers use principles of behavior modification, including reinforcement. This may include intrinsic, extrinsic and symbolic rewards, although many educators object to concrete rewards as bribing students rather than building more intrinsic motivation for learning. Contingency contracting and cognitive behavior modification are other approaches.
- Effective teachers also use counseling and psychotherapy techniques in handling disruptive behavior. They draw on management theory and develop a leadership style which is essentially democratic and authoritative.

Chapter 5

What Do Teachers Say?

Researchers have now defined effective teaching, but what do good teachers think about the findings? How does their teaching match the research? Each National Teacher of the Year award winner since 1971 was interviewed for this report and questioned about the characteristics of effective teaching described in the preceding chapters.

Each year, chief state school officers nominate a candidate from their state for the national program. The states are free to find their candidates through any method of selection they choose, but nominated teachers should exhibit a sound professional education, successful teaching experience, skills in human relations, intellectual ability, emotional maturity, love of children and wide cultural interests, according to the sponsors of the program. The Encyclopaedia Britannica Companies, the Council of Chief State School Officers and *Good Housekeeping Magazine* sponsor the award.

Martha M. Stringfellow - 1971

"Flexible, able to stray from the 'agenda,' able to make learning fun. That is what separates effective teachers from ineffective ones," says Martha Stringfellow, the 1971 Teacher of the Year.

She taught first grade for 22 years in York and Chester counties in South Carolina before retiring in 1977 to a large farm which she always used as a curriculum resource.

"My husband helped the children make a treehouse and a stage," Stringfellow says, "We painted the treehouse bright colors. If the children completed their work they were allowed to go to the treehouse to read. It was a special privilege.

She used a variety of teaching methods and tried to individualize instruction as much as possible. "I built learning stations with cardboard and frequently had seven groups going at once. We also used a buddy system since the children loved to help one another. I suppose if students learned nothing else, they learned to cooperate with each other; they learned to respect one another."

In terms of classroom climate, Stringfellow says she emphasized helping students "feel good about themselves." She brought in interesting objects to explore and tried new methods—"I hope I made

learning fun. I know that it was fun for me."

She says it was important for students to express themselves and to explore new situations. "I tried to phase students into new situations. The children also learned how to work in a variety of situations—small groups, whole groups, by themselves. They learned to respect one another; to take turns; to share. I evaluated students primarily through observation, testing and individual work."

Stringfellow, who left teaching for a number of years to raise three daughters, says when she returned the "children had changed so." In 1937, "not as many children came from single-parent families. When I returned in 1963, children had so many problems. They were insecure My style changed; I listened. I became involved in their lives. I visited their homes."

Her style could best described as personal: "I tried to provide the children with 'extras'—nature walks and other shared experiences. I tried to reach each individual child."

And, she emphatically believes that "a test does not make a teacher," referring to competency tests for teachers.

James M. Rogers - 1972

"It is not a method but rather an approach to each student as a person. I don't have any one method but try to fit the instructional methods to each student. I get to know students and what they respond to. Some require a strict line; others do not. It varies with the student, but one should never 'trap' a student. Always leave them a way to 'save face,' " says James M. Rogers, the 1972 Teacher of the Year.

Formerly a teacher of American history and black studies at Durham High School in North Carolina, Rogers has taught at Gaston Community College since 1976. Classroom management and evaluation procedures Rogers uses include written ground rules, frequent tests and monitoring of discussions.

He describes his teaching style as "wide open" since he tries to encourage lively discussions and prefers to work in small groups.

"I suppose if students learn nothing else in my classes they learn that there are no absolutes and to be tolerant of other views," Rogers says. "We tape the discussions from time to time and analyze the discussions in class. My classes are informal, entertaining, alive."

He finds that effective teachers let students know what is expected of them. "Objectives are clearly set. Effective teachers make assignments that lead to something; they evaluate progress. Ineffective

teachers, on the other hand, are unsure of themselves. This attitude comes through to students; they can sense this. Effective teachers are self-confident, well-organized and respect students as people."

Rogers uses a number of evaluation methods including diagnostic tests and final exams. He uses both teacher-directed and student-directed methods and activities and likes to ask questions which require students to examine other opinions and to defend an argument: "It is extremely important that students be able to articulate their point of view orally and in writing."

He tries to work with more difficult students by remaining calm, giving them good common sense advice and maintaining his sense of humor: "I try to treat students as people, to deal with them humanistically."

Rogers is outspoken about teacher competency testing: "There are incompetent teachers in the field. We have to police ourselves or the public will." He advises ineffective teachers to upgrade their methods, "to keep their finger on the 'pulse beat' and share new ideas with students."

Jack Ensworth - 1973

Jack Ensworth, the 1973 Teacher of the Year, is a gentleman farmer as well as a teacher in Bend, Ore. This teacher—who now stocks the ponds on his property with rainbow trout and bass and enjoys the outdoors—grew up in a tough Italian neighborhood in Akron, Ohio, which he describes as "one place I wanted to get away from." He wanted to teach because he knew "school could be hell for kids unless someone 'reaches' them."

Ensworth is currently teaching fourth and fifth grade and works hard to help students develop a positive self-image. He does this by encouraging students to express themselves verbally and teaching them how to negotiate rather than fight. On classroom management techniques, Ensworth says he is demonstrative and expressive with students; he trys to note something positive about each student.

"I like kids," he says. "Not all kids are likeable, but you've got to like them, care about them, listen to them. In disciplining students I talk to them privately and am careful to let them know that while I like them as people, I don't like what they did."

Ensworth has a system of "lost privileges" and an area of the classroom called "the pit" where students spend "time-out" periods. Students can work their way out of the pit only after they reach an agreement with him about their behavior.

Although he teaches a variety of subjects, he emphasizes writing "across subjects." Creativity and structure are both important, he says. Similarly, although mechanics are important, he doesn't overemphasize them and tries to strike a balance between creative writing and structured expository assignments.

"I may give an assignment like 'Pretend you are a pencil' and ask students to write from that perspective," Ensworth says. "Students also keep a creative writing notebook." He also plans projects with students such as field trips and plays or musicals to give students a sense of ownership in the class and to teach them the value of cooperative learning.

Ensworth says his style has changed over the years. "When I began teaching I emphasized the self-contained classroom and discrete subjects. Now I cut across subjects and use resources outside the classroom." So that parents and students know what is expected, he develops a work schedule with students. This is a list of homework and other assignments, complete with due dates and a spot for parents to check off whether or not assignments have been completed.

Ensworth keeps his job from becoming routine by "changing grade levels, throwing out files and changing materials. I'll try puppetry with students or new creative writing experiences.

"In over 20 years of teaching, one necessity has become very apparent to me. A good sense of humor is essential to enable a teacher to survive and enjoy the teaching profession. Since children are not machines which can be set and programmed to a definite outcome, one may often find his best-laid plans have to detour along the way before reaching their destination. The capability to laugh at oneself as well as others certainly makes the journey more palatable."

Vivian Tom - 1974

An exchange program and pursuit of a master's degree brought Vivian Tom from Hawaii to Yonkers, N.Y., in 1958 and she decided to stay. Tom has taught ninth and twelfth grade social studies for 28 years, more than 20 of them at Lincoln High School in Yonkers.

Methods she has found to be the most effective with students include discussion and small and whole group instruction. "I use some individualized instruction, but mostly with my slowest and top groups," Tom says, "It also depends on the size and ability level of the group. Ninth grade demands leadership. Seniors, on the other hand, are more independent and capable of more individual work."

Regardless of the group, however, she requires considerable oral and written work and responses which go far beyond textbook answers. "While the background of facts is important, I constantly ask probing questions which require students to go beyond the facts. As a matter of fact, apparently I do this so often that students will say to one another, 'I know Mrs. Tom is going to ask us "Why?" ' I feel that it is extremely important that students be able to provide examples to prove a particular point or develop an argument."

She feels that even if students forget the content of her course, they will at least have learned how to use writing to express their ideas. For this reason, she spends considerable time teaching them how to develop an argument and how to use study and library skills to research problems and write research papers. She requires both written homework assignments and essay exams.

"The scope of the assignments, of course, depends on the group. With the accelerated group I require considerable outside class reading. But in no case do I assign busy work. I also like to use simulation games, when there is time. In New York, students must pass regency exams and department exams so that we don't often have time for an extended problem-solving or simulation approach. But I do 'come at' topics from a problem-solving orientation. For example, rather than lecture on the geography of Africa, I might say, 'Do we feel Africa's geography would help various regions become developed countries?' Or in a unit on Africa, I might use a simulation game to develop the idea of how tribal members might go about establishing a government. There is always a certain background of facts one must have, but once students have this background they can use it to engage in debate."

Tom finds that students have changed somewhat since the 1960s and 1970s in their unwillingness to take on projects outside the classroom, such as volunteer work in hospitals, political campaigns or elections. "Students don't seem to be fighting the social battles that they once were. Perhaps it's a general 'pulling in' due to the economy and the fact that more students have jobs. But also it seems that students have less concern for social issues."

Her advice for teachers who feel they are in a rut is to "get involved in new ideas. Read about new ideas and try them in the classroom. Interact with other adults. Volunteer and explore other opportunities. Develop as a whole person. Make things happen."

On teacher testing, she feels teachers must be competent because they set an example. Moreover, she favors better teacher training programs to attract the best people. "An awful lot of what appears to be weaknesses in the schools is actually weak teaching. Teachers must

graduate from college with the necessary skills. If they do not, it works against the profession."

Robert Heyer - 1975

"Lectures, demonstrations, labs and post-labs—we use a variety of structures in our science and life sciences classes," says Robert Heyer, head of the Science Department of Johanna Junior High School in a suburb of St. Paul, Minn.

Students learn through discovery, observation and data analysis, says Heyer, the 1975 Teacher of the Year. Team teaching also enables Heyer and his partner to switch areas of responsibility and work individually with students.

"One teacher can monitor the group as a whole and the other can work with individual students during labs," he says. "Because the physical sciences include physics and chemistry, we include experiments to enable students to arrive at mathematical equations and formulas."

"The value of post-labs can't be over-estimated," Heyer says. "It is a challenge to determine where each student is and bring them along gradually so that they can handle more difficult material, a step at a time. It's a bit like weightlifting."

"I hope that if they learn nothing else, students develop respect for each other and appreciate the value of learning. The goal of education is to help everyone reach his or her limits mentally and physically."

Heyer says teaching has changed significantly since he began teaching 26 years ago. "When I started teaching, the standard format was the lecture. Then came the lecture-demonstration and now the lecture-demonstration-lab is used. Technology is also having an impact on the science classroom. Hand-held calculators have replaced the slide rule and the computer is being used more and more in mathematics. While sophisticated computer simulations are still impractical, we do use videotapes in science. I also think science lends

itself to variety and can be exciting for students.

"During the Sputnik era, there were special incentives for science teachers to go back to school. For three summers in a row, I attended eight-week sessions in chemistry and biology. Now it is extremely difficult, especially for married people with families, to take that much time off."

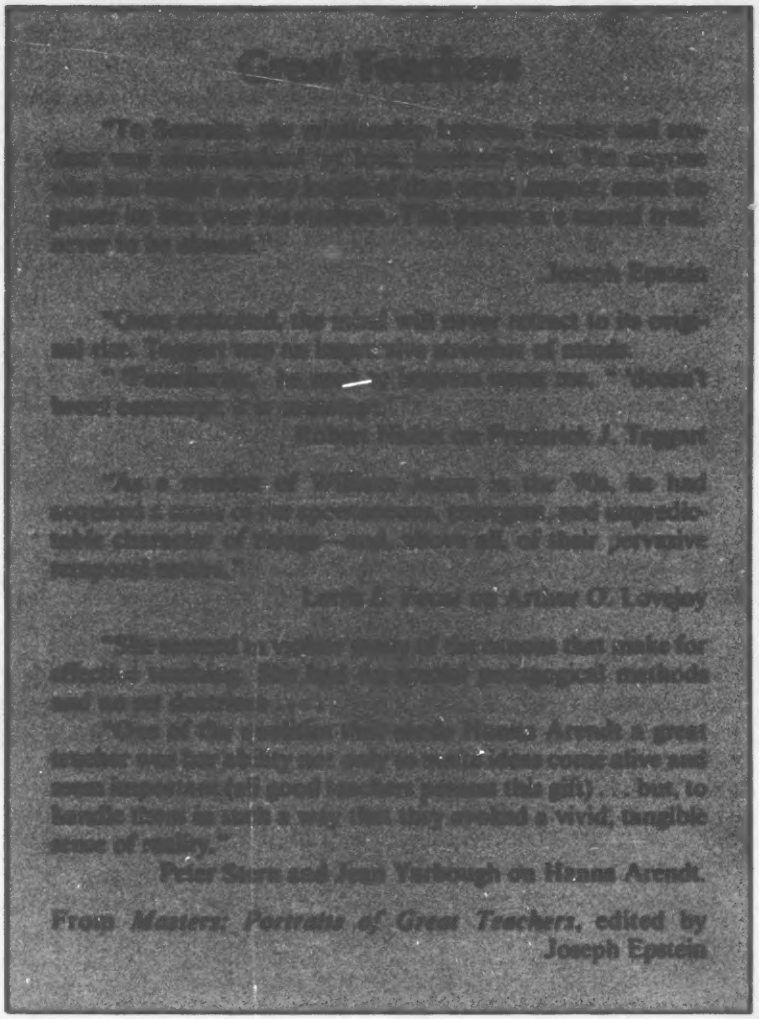
Concerning classroom management, Heyer has a number of safety and other rules he explains to students at the beginning of the year. "If you explain to students why certain rules are necessary and the rules make sense, they will go along with them. Students need to know what your expectations are. If you expect students to be responsible for equipment, for example, and they know other classes need good, clean equipment as well, students can accept that. It makes sense."

He also says it is important to let each student know that you notice him or her and to treat each student as special. "I stand by the classroom door and greet students—'Did you watch such and such on TV last night?' or 'How is the choir doing?'—as they enter the classroom."

Heyer also coaches football and track which gives him "out-of-the-classroom" contact with students and tries to stay fresh by teaching concepts in different ways and trying new things. He has a dim view of inservice training, however, which he calls "a real desert land, one-shot deals; there is never any continuity." On the other hand, he says, workshops can be worthwhile and give teachers an opportunity to see new things.

"Effective teachers are enthusiastic, enjoy their work and put in work beyond the normal school day," Heyer says. "Their attitude conveys that school is a place to have fun, to learn, to respect others and to help others achieve."

"I want my classroom to be filled with warmth, humor and enthusiasm about science, but I also want it filled with concern for individual worth, individual rights and individual responsibility. I believe a teacher must play a role in helping students develop self-discipline, self-confidence, self-honesty, reliability and humbleness, in the classroom and outside of it. I think it is extremely important that my students leave my class with a positive attitude toward science, toward life and toward themselves."



Ruby Murchison - 1976

Brainstorming, individualized instruction, learning centers, inquiry method—these are among the techniques which Ruby Murchison, the 1976 Teacher of the Year and social studies teacher at

Washington Drive Junior High School in Fayetteville, N.C., used with students. She is now a consultant for gifted and talented programs for the North Carolina Dept. of Education.

Murchison, who taught both advanced and basic courses, finds that a teacher should "accept each youngster as an individual, encourage a positive self-image and create a learning environment in which a child feels stimulated to learn useful and needed knowledge."

She favors grouping bright students together so they can compete with youngsters of equal ability as well as share interests. Frequently, she taught at a special demonstration school for superior students during the summer months.

Murchison prefers group discussion and worked with students on group process skills such as listening and consensus-building. "The first day of school we went over the rules, but each student also made a collage from pictures of things which were important to him or her. Students talked about their collages and explained to the group why the items they selected were important to them. I tried to help children believe in themselves, to develop their sense of self-worth."

She used both whole and small group instruction and both formal and open classroom situations, depending upon the activities and the skills of students. She says her style changed during her teaching career. When she first began she had "nifty ideas but I wanted to implement them all at once. I tried to take the students along too fast. I needed to learn how to slow down and do a more in-depth job. I became much more student-directed and paced instruction according to their needs."

At times, she says, she was autocratic, at times democratic in her leadership style: "I really used a blend of these two styles and saw myself as a facilitator to guide, direct and monitor student learning."

Effective teachers are concerned about children, flexible, have a sense of humor and a high tolerance for varied ideas, Murchison says. They also take time for students and involve them in planning and enrichment activities.

"I had an open door policy before and after school. I tried to involve parents in the classroom. In talking with parents, I tried to be honest about their child's work and emphasize the positive as well as the negative. It is extremely important to talk with parents since they play such a vital role in a child's education." Murchison says parents have also assisted her in important ways such as teaching students how to use the library and other resources.

She sees an important correlation between direct instruction and time-on-task and student achievement: "Teachers must examine their own teaching patterns to avoid time wasters, to make sure instructions and resources are adequate and clear and to demonstrate what is expected of students."

She also feels that student response is crucial to the learning process: "Student participation should be of a nature that it will assist in relating new information, skills or procedures to what students already know. Brainstorming and divergent questioning techniques are excellent strategies to get students in a mind-set for new knowledge."

Murchison also emphasized organizational and language arts skills. Oral and written drills as well as vocabulary and writing assignments were an integral part of her class. In teaching problem-solving skills, she helped students look at alternatives and weigh them to arrive at decisions. Students were asked to explain why they reached each decision, to evaluate the experience, to describe problems they encountered along the way and to evaluate how they spent their time.

As for classroom management and discipline problems, she spoke with students individually, trying to impress upon them that not only are they responsible for their actions, but also they influence what happens in the classroom.

Murchison enjoyed teaching because she loves to watch children learn. She kept the job from becoming routine by bringing in outside resources as well as organizing activities for students outside the classroom, such as interviewing people in the community. "During election time we held our own campaign and mock elections. One of my classes became so involved in the democratic process that it initiated a change in how the student council is elected at the school. Now students actually hold a convention and send representatives."

Her tips for tired teachers include: "Help children learn to feel. You must learn to feel before you learn to learn. Too often teachers are committed to communicating knowledge from the text rather than communicating with students. Students can't always see the connection between what you are trying to teach them and their lives. You have a responsibility to help them make these connections."

Murchison feels that while teacher competency exams have many uses, they do not measure the emotional and affective aspects of teaching. For this reason, she favors competent teachers rather than tests, but if tests are necessary they should be designed to measure affective areas, she says.

Myrra Lee - 1977

"Once when I was teaching in Palm Springs there was no text for my course in world problems and I had to develop my own materials," according to Myrra Lee, the 1977 Teacher of the Year. "It was the best thing that ever happened. The class was far superior and I've been designing my own materials ever since."

Lee teaches social studies courses—minority emphasis in U.S. history, women's studies and social living—at Helix High School in La Mesa, Calif. She is outspoken, not only to keep her elective courses alive despite Proposition 13 (although apparently student demand accomplishes that), but also because she is the sole female on the 15-person social studies faculty.

"Our school is one of the top academic high schools in California and there are virtually no women here," Lee says. "Faculty notices are frequently posted only in the men's lounge."

Topics covered in her women's studies classes include battered women, equal rights, men's liberation and abortion, yet she has never received any pressure from parents to eliminate certain subjects. An important reason may be that Lee firmly follows the practice of presenting all sides of an issue. If the topic is the Equal Rights Amendment, for example, students will talk to leaders of the Moral Majority as well as the National Organization for Women, Lee says.

Discussion and simulation are the teaching methods she has found to be most effective with students. Her students must prepare position papers outside of class and use facts to formulate arguments and opinions. Students learn how to evaluate arguments and test hypotheses.

In her minority emphasis in U.S. history class, the year begins with a simulation game called Star Power. After a unit of social studies and economic concepts concerning resource allocation, students are given symbols with various point values which will determine their grade. Students with the most points make up the rules of the game. "Many students get very upset and go to the vice principal or counselors to protest this unfair treatment," she says. "All of this is done, of course, to demonstrate how minorities feel—their feelings of hopelessness and frustration."

"We also set up a city council and deal with the real issues affecting the six communities our actual council services. Years later students tell me they remember every bit of it; the simulations leave a long lasting impression on them," Lee says. At first many students are uncomfortable with the discussion and simulation approach but some confide to her later that hers was the only class where they participated in discussions.

"Everyone's opinion is valid if it is backed up. This is a firm rule. I also do a lot of work in small groups and use group dynamics techniques," she explains.

Lee says if students learn nothing else in her class she hopes they will learn how to think, to write, to research different sides of an issue and to respect other people. She also hopes they will appreciate that learning is more than academics; it involves feelings.

Lee evaluates students on the basis of written work, exams and homework assignments. She pays particular attention to student writing. Her style has changed over the years and she has become more student-centered: "I used to think that the teacher had to be creative all the time, to be a real dynamo, but what I discovered was that the teacher should help the *students* be creative. I am an authority figure but the *students* play the big role in my classes.

"Students tell me all the time that their perspective about certain issues has changed as a result of my class. One boy was very upset because we didn't come up with right or wrong answers. On the other hand, students call me and tell me how much a class has influenced their lives. Teaching is so rewarding when you see students realize something for the first time or when they tell you that you have influenced their lives."

What separates effective teachers from ineffective ones, Lee says, are "enthusiasm, love of people and self-image. Effective teachers are creative and have a desire to learn. Knowledge of subject matter figures in there somewhere but it isn't the crucial thing.

"I believe learning is a self-fulfilling prophecy," she says. "If we expect students to produce they will. I have high expectations for students and I try to help them accomplish more."

Lee believes competency tests cannot measure what makes an effective teacher because many qualities of effective teaching are intangible. Rather she feels that teacher candidates should be screened before they get too far along in the program. She also says "burn-out" can be attributed to just plain exhaustion. "Teachers aren't appreciated and have low job status. The only thing that keeps me teaching is that I know the students appreciate me. Teachers don't receive financial or social recognition; let's face it, the students are the primary motivator."

Elaine Barbour - 1978

Building a sense of community, revamping a school and pulling up math and reading scores may seem like an arduous task, but not if

you're Elaine Barbour, the 1978 Teacher of the Year. When she transferred to Coal Creek Elementary School in Montrose, Colo., the 70-year-old building was dilapidated, the students were reading three years below grade level and discipline was clearly "out of control."

Barbour accepted the position because it was a challenge as well as an opportunity to be head teacher and call her own shots. "I had been at my previous school a long time and I wanted to try something new. Coal Creek had a reputation for being a school of juvenile delinquents and I wanted to do something about it. The first thing we did was paint the building—inside and out—with paint donated by a local paint company. We put carpet in every room. Students, parents, community people and teachers planned projects and helped paint. After that we planned more projects. We transplanted several log cabins, built an Indian oven and a treehouse. The children built an 'outdoor laboratory'—planted 2,000 trees, laid irrigation pipes, dug a pond and cultivated grasses.

"I expected a great deal of students and said to them 'This is your school. What do we need to do to make it a good school?' And we worked at it. Discipline problems began to disappear. I think all kids are capable but you have to have confidence in them and instill a 'can-do' attitude. Children who have experienced failure for years can do remarkable things once they experience success.

"Students also knew that I wouldn't accept second-rate work. We made a dozen learning stations in the classroom, and children were responsible for keeping materials in order. They drew up study contracts with me concerning the work they were going to accomplish. They also worked in pairs to study such subjects as grammar, spelling and social studies. We planned field trips and exchanges with other schools. We built a real community."

Every student in Barbour's class had a job to do, from keeping the centers stocked with supplies to checking student work completed at each center. "Students were given responsibility and knew I depended on them. I emphasized that all jobs were equally important. I think that it is also important that teachers never expect anything from students that they wouldn't expect from themselves. Honesty and consistency are so important."

She also did a number of things to build student self-confidence and school spirit. Projects included starting a chorus which performed publicly and initiating the irrigation and landscaping projects which won a state environmental award for the class and a trip to Denver for every student.

Barbour describes her teaching style as child centered and informal: "We had three rooms and 88 students at Coal Creek. After we

put in the carpeting, we voted not to wear shoes in school. Students wore house slippers so we could keep the carpet looking nice. I guess that's pretty informal," she said jokingly.

Barbour emphasized homework, writing and long-range projects with her sixth-grade classes. Students also kept journals in which they could jot down thoughts or copy poetry they liked.

"I never said anything about their journals unless they asked me to comment about something in particular they had written. I wanted students to write and think, but I never graded their journal writing or wanted to pry into their private thoughts."

Of incompetent or ineffective teachers she says, "They need to do other things. Build other interests. Get their batteries charged. Any teacher worth his salt goes to school and takes the time to travel."

After her Teacher of the Year experience, Barbour worked as a counselor at four schools and completed coursework at Western State College of Colorado in Gunnison to be certified as a principal. But she is quick to add that teaching comes first: "Even though I'm certified as a principal, I never want to be strictly an administrator. I always want to teach."

In the Fall of 1981 Barbour headed for the Yakutat City School in Alaska to teach first and second-grade Indian children. The K-12 school of 150 students is 200 miles from Fairbanks and accessible only by airplane. Once again, she was seeking a challenging situation.

Marilyn "Willy" Black - 1979

"The most important thing to me is that children learn how to do things themselves," says Marilyn "Willy" Black, the 1979 Teacher of the Year from Hanover, N.H.

A teacher of art at the Bernice A Ray Elementary School, Black has a reputation for living up to this credo of self-sufficiency. For example, when the school's Bicentennial project involved building an authentic colonial cabin, she took charge of the fund-raising efforts, pounded in pegs and secured the first beam. When a school trip was almost cancelled because there was no money to pay bus drivers, she obtained a bus operator's license and helped the rest of the faculty do the same.

Students also learn to plunge in and do things for themselves in her classes. During their course in early American crafts, students

learn how to card, spin and weave to make quilts and clothing. To do this, of course, requires wool so the fourth-grade class built a pen and the wool supply arrived—two sheep.

Black says involvement and getting things done build a child's self-confidence and self-reliance. Her students build full-scale models of sailboats, construct furniture and grow crops.

As to classroom management, she says, "Students know what my expectations are and that a key rule is that no one will keep others from learning. I am firm but fair. Students know that they can enjoy art but that it also involves discipline and respect for materials."

Black says effective teachers have a sense of humor and hold children responsible for learning. She also feels effective teachers let children know what is expected of them. Like other Teachers of the Year, she doesn't feel that competency tests for teachers measure "real factors. They can't determine interpersonal skills of how teachers motivate students. To me, teaching has to be fun and teachers must like children and recognize them as sensitive human beings. Just learning facts is not good teaching. Anyone can be made to recite facts, memorize things, but a good teacher will challenge the child so that they come up with conclusions themselves."

Beverly Bimes - 1980

"Students should be active, not passive learners. I start with a 'hooker'—a skit, brainstorming, an activity—to motivate students to participate in the lesson," says Beverly Bimes, the 1980 Teacher of the Year.

As a teacher of high school English at Hazelwood East High School in St. Louis, Mo., she initiated a total-school writing program. All teachers and students are required to write essays on given topics. Class activities and writing exercises are triggered by real world experiences.

"'Today we are going to the Jamestown Mall,' I might announce to begin a role-playing activity. Students assume the roles of shoppers, salespeople, security guards . . . until suddenly, there is an explosion. 'Go back to your seats and write about what happened from the point of view of the character you were playing,' I'll tell students. From there they might give their eye-witness accounts to a student-appointed television interviewer."

Bimes says she uses a variety of methods from open discussions to role-playing exercises. Her classroom management involves establishing an atmosphere of trust: "We use peer editing and group dynamics. Students learn to share responsibility as well as to value participation."

Students also keep a book of their writing errors, and this information is used to plan lessons on writing mechanics. Literature also serves as an important springboard for writing assignments.

Bimes says her style has changed radically over the years. "I was very teacher-oriented when I started teaching. I was so involved in the content I forgot about the students. But while I was raising a family I did a great deal of reading. One of the books I read—*Teaching as a Subversive Activity*—had a profound effect upon me. I became more student-centered. I read about learning theory and affective learning. I asked myself 'What can I do to make learning exciting?' to get away from the 'brown-bag' syndrome of regurgitating information."

She finds that effective teachers "make each day new and exciting. They continue to grow professionally. They are competent, open to change, show a genuine concern for students."

To keep communication flowing, Bimes asks students to send her 'telegrams' when they have something important to tell her. "It is so important to be consistent, to let students know what your expectations are. Similarly, students should let you know what they expect of you." To encourage this practice, she asks students to write an ad for the perfect teacher. Because Bimes finds writing so important as a tool for communication and self expression, she organized a series of writing workshops.

She is opposed to competency tests for teachers: "We need to set standards within the profession; we should control our own destinies. A gutsy change has to be made. Teacher education programs have to have strong field components. But tests will never make teachers. The worst student teacher I ever had had a 4.0 grade average but no interpersonal skills."

Her advice to teachers: "You need opportunities for self-renewal. Take time to get in touch with yourself and do what you want to do. Don't be a martyr. Look at what you are doing in the classroom. What are you doing that is unproductive? Look at alternatives. Set realistic goals for improvement. Exchange ideas with colleagues. Enroll in classes. Interact with adults."

Since becoming Teacher of the Year, Bimes has embarked on a new project to train master teachers. Through Lindenwood College she is seeking business support for a teaching institute. Twelve teachers would be resident scholars and receive a stipend for a one-

year institute. As part of the project, she is organizing workshops for businesses, parents and teachers in reading, writing and communications skills. She is also working with the faculty and students of a school in St. Louis which recently lost its accreditation.

Jay Sommer - 1981

"Motivation for language learning is universal. It's the most natural thing in the world," says Jay Sommer, the 1981 Teacher of the Year and teacher of Spanish, Russian and Hebrew at New Rochelle High School in New York.

Born into a poor Yiddish family, he had to drop out of the fourth grade in order to support his family. At the age of 12, he was sent to a Nazi labor camp where he saw his own brother being shot. His entire family was killed in the Holocaust. He managed to escape from the camp and at the end of World War II lived in a displaced persons camp in Hungary. When he was 20 he immigrated to the United States and attended night school for 21 years to complete advanced degrees in languages. He hopes students will see America as he does—as a place of hope and opportunity.

Sommer speaks 10 languages and holds a language workshop at New Rochelle which is "multi-lingual." Students who are learning several languages may attend this class as well as those who wish to learn languages not commonly taught at the school.

"You must communicate to students that they are the most important thing in life," he says. "Your love of the subject and of the students is infectious."

There must be some truth in this. His students gave him another title after he became Teacher of the Year—"Human Being of the Year." Methods Sommer uses to hold student attention include asking students to repeat what others have said and to teach others. "Every student must participate. A test of learning is to ask students to teach what they have learned to another student."

He says his style is personal and he trys to build an atmosphere of warmth in his classroom. "If students learn little else from me I hope they will learn the value of mutual respect and self-confidence."

"Discipline," he says, "should be instructive rather than punitive. It is important to be firm but fair. Discipline problems must be settled on an individual basis."

Sommer values foreign language because he sees language as a tool to understanding other cultures and people and therefore as a force in international understanding and world peace: "There is no

greater compliment in the world than to hear your language spoken by a foreign person," he says.

He does not disapprove of competency tests for teachers, but finds that what separates effective teachers from ineffective ones is love of the subject and love of students. Ineffective teachers are indifferent toward both, he says.

"Not persistent punitive measures, but kindness and understanding are the most potent forces in learning. Inspiring students with a sense of their own worth gives them the confidence to express themselves more freely, to explore and learn through mistakes and to regard learning as an adventure.

"An effective teacher also understands the dynamic nature of the profession and will continue to develop and grow professionally," he says.

Summary

Teachers of the Year agree for the most part on what makes an effective teacher as well as on effective methods and management practices.

- As evident from their remarks, these outstanding teachers view good teachers as flexible, student-centered, democratic, authoritative and actively involved both in and outside the classroom. Effective teachers pursue advanced degrees and interests ranging from travel to community projects. They continue to grow personally and professionally, sometimes scrapping old methods and materials to try a new approach or test a new idea.
- The methods they use vary, depending upon the skills and needs of students and include a blend of whole group, small group and individualized instruction. Similarly, they evaluate students in a variety of ways, ranging from participation in class discussion to testing.
- All attempt to establish a climate which is supportive and where rules make sense and benefit the group. This includes holding students accountable for materials and routine housekeeping tasks as well as projects and homework assignments. Disciplinary action is largely unnecessary in this environment where expectations are clearly set, but when it is needed these teachers try to be "firm but fair" and deal with students individually. The focus on positive behavior and helping to build students' self-confidence and self-worth through successful learning experiences.

- Interestingly, most of these teachers report that their styles have changed over the years from "teacher-centered" to more "student-centered." Their experiences have taught them that learning occurs in a supportive rather than in a competitive or threatening environment. They perceive themselves as facilitators of learning rather than as "conveyors of content."
- Their remarks also indicate that the scope of their teaching has changed, frequently cutting across subjects and including attention to problem-solving and critical-thinking skills. All teach students the skills they will need to be independent learners, and many say a chief goal is helping students to become self-sufficient.
- These teachers, with a few exceptions, aren't opposed to competency testing for teachers, but agree that the tests can't measure affective areas and interpersonal skills which are crucial to good teaching. Many see the "solution" to teacher competency in more rigorous teacher preparation programs with strong field training and in enrichment activities for tenured faculty.

Chapter 6

Recommendations, Models, Tips

> The goal of education must be to develop a society in which people can live more comfortably with change than rigidity .... But such a goal implies, in turn, that educators themselves must be open and flexible, effectively involved in the processes of change .... Develop a climate in the system in which the focus is not upon teaching, but on the facilitation of self-directed learning.
>
> Carl Rogers

Recommendations for improving teaching can be drawn from educational research and studies of teacher models.

In his review of the work of the International Assn. for the Evaluation of Education Achievement (IEA), Benjamin Bloom notes findings which have implications for good teaching which are applicable across cultures. Among them:

- Where the capabilities of the teaching staff are low, a nation which wishes to upgrade its students' learning must either attract more competent teachers, provide more adequate inservice education or use mass media to supplement what the classroom teacher offers.
- There is a significant relationship between the amount of time the student devotes to a subject and learning in that subject .... There is a strong likelihood based on other research that involvement, the percentage of time in class that the student is actively working on a subject, is also a significant element in learning.
- Verbal education (reading comprehension and word knowledge) tends to dominate and in large part determine what students learn in the schools .... Unless the student can understand the teacher's explanations and instructions, he has difficulty in learning. Verbal skills enable students to learn from the instructional materials even when the teaching is less than adequate.
- Societies which wish to improve children's school learning have only two realistic policies to follow: increase the effec-

tiveness of the early education of children and/or increase the effectiveness of verbal education in the schools, especially during the ages of 6 to 10.

- In each subject, in almost every country, students perform best on the lower mental processes involving knowledge, perform less well on items involving some interpretation or comprehension, and perform least well on test problems requiring applications, higher mental processes, and complex inferences . . . . Although teachers, curriculum makers and testers profess more complex objectives for education, the actual emphasis in the classroom is still largely on the learning of specific information . . . . It is likely that increasingly throughout the world, problem solving, inferential thinking, and various higher mental processes will be required if the student is to use what he learned in the school, if school learning is to be relevant to the problems individuals encounter, and if adults are to continue learning after the school years.
- If individuals are to continue learning in the major subject areas, much will depend on the affective qualities that schools have developed in them, whether they were developed intentionally or not.
- One might also hope that teachers would develop instructional strategies designed to help most of the students achieve mastery of at least the tool skills and the required subjects . . . . These instructional strategies make use of the existing curriculum but provide frequent feedback to students on their learning development or learning problems and follow the feedback with changes in instructional procedures and with help and correctives as needed.

Another outgrowth of the IEA studies are the recommendations made by Tamar Levin and Ruth Long, in *Effective Instruction*, concerning active learning time, feedback, corrective procedures and instructional cues. These variables are described by the authors as those having the *greatest* effect on learning and instruction. Their "how-to" recommendations include:

- To promote class involvement: Devote more time to teaching-learning activities. Increase student participation. Make fluid transitions between activities. Use adequate and clear instructions. Increase interest in the value of instruction.
- To improve individual student involvement: Identify and help the least-involved students. Prepare students adequately. Adapt instruction to individual needs.

- To increase the effectiveness of feedback and corrective procedures: Provide a precise definition of the standard of performance to be obtained. Provide relevant, precise and valid evidence to the learner on what has and has not been achieved. Determine and use corrective procedures by which gaps in the learning, mistakes and other misunderstandings can be relearned or corrected. Feedback and corrective procedures are needed at regular intervals during the learning process.
- To improve instructional cues: Increase the variety of cues. Adapt cues to individual needs. Adapt cues to class needs. Use cues spontaneously.

From reviews of the literature as well as his own work, Nathaniel Lees Gage has devised a number of "teacher-should" statements:

- Teachers should have a system of rules that allow pupils to attend to their personal and procedural needs without having to check with the teacher.
- Teachers should move around the room a lot, monitoring pupils seat-work and communicating to pupils an awareness of their behavior, while also attending to their academic needs.
- When pupils work independently, teachers should insure that the assignments are interesting and worthwhile yet still easy enough to be completed by each student without teacher direction.
- Teachers should keep to a minimum such activities as giving directions and organizing the class for instruction. Teachers can do this by writing daily schedules on the board, insuring that pupils know where to go, what to do, etc.
- In selecting pupils to respond to questions, teachers should call on a child by name before asking the question as a means of insuring that all pupils are given an equal number of opportunities to answer all questions.
- With less academically oriented pupils, teachers should always aim at getting the child to give some kind of response to a question. Rephrasing, giving cues, or asking a new question can be useful techniques for bringing forth some answer from a previously silent pupil or one who says 'I don't know' or answers incorrectly.
- During reading group instruction, teachers should give a maximum amount of brief feedback and provide fast-paced activities of the drill type.

Elements of Direct Instruction

Clear goals which are communicated to students.
Sufficient time allocated for instruction to ensure a high quality of learning.
Extensive coverage of content.
Strong relationship between goals taught and goals tested.
Careful ordering and/or sequencing of goals and tasks.
Teacher control of instructional goals and materials.
Teacher control of the pace of learning.
Questions presented to students at a low cognitive level (e.g., encouraging the recall of facts and rules) so that they can produce many correct responses.
Monitoring of students' performance.
Immediate and academically oriented feedback to students.

Barak Rosenshine

Fifteen Thousand Hours, by Michael Rutter, while primarily a study of the effects of schooling, contains implications for effective classroom practice. Many of the findings confirm other research about climate, expectations, leadership style, academic learning time and classroom management. Among them:

> Children's classroom behavior was much better when the teacher had prepared the lesson in advance, so that little time was wasted in setting up apparatus or handing out books and papers; when the teacher arrived on time at the start of the lesson; and when, if the lesson was planned as class-oriented, the teacher mainly directed attention to the class as a whole.
>
> Good pupil behavior was . . . strongly associated with the teacher's style of discipline . . . . A disciplinary style which involves very frequent interventions is likely to be counterproductive.
>
> Children had better academic success in schools where homework was regularly set and marked, and where the teachers expressed expectations that a high proportion of the children would do well in national examinations.
>
> Schools in which a high proportion of children held some kind of position of responsibility in the school system had

better outcomes with respect to both pupil behavior and examination success.

— Few measures were obtained on the extent of shared activity between staff and pupils, but it was found that schools in which a high proportion of children had been on out-of-school outings had better academic outcomes.

Thomas Good and Jere Brophy also provide a number of practical suggestions for improving classroom climate and instruction:

— Fostering a Good Group Climate: Show interest in students. 'Model' good listening and communication habits. 'Model' emotional control. Show respect for others. Establish credibility.

— Effective Instruction: Match the difficulty level and interest value of materials and assignments to the present skills and interests of the students. Adapt material to student interest. Monitor work involvement. Increase time spent with low achievers. Provide for self-evaluation.

— Effective Demonstrations: Focus attention. Give a general orientation or overview. If new objects or concepts are introduced, label them and have the students repeat the labels until they understand. Go through the process step-by-step with an explanation of what you are going to do next, and then follow through by describing your actions as you do them. Think out loud throughout the demonstrations. Perform each action slowly and with exaggerated motions to help insure that the students follow.

— Effective Group Instruction: Clarity is crucial. Be enthusiastic. Use a variety of teaching methods. Systematic use of a variety of techniques produces better results than heavy reliance upon any one technique, even if a good one. Lectures mixed with small-group work, panel discussions, debates and other devices add spice to classroom life. Use questions which are clear, purposeful, brief, appropriate to the level of the class and thought provoking.

A teaching model which was developed by Madeline Hunter, principal of the laboratory school at UCLA, has been field-tested in a number of public schools, including several in the Long Beach Unified School District. Students who were involved in the major program—Project Linkage—made substantial gains in reading and mathematics and developed positive attitudes toward peers, teachers and their school work. Hunter is a trainer of teachers and believes that improving teacher competency is the key to student achievement gains.

"By changing nothing but the professional competency of the teacher," Hunter says, "a more pronounced acceleration in students' learning will be achieved than can be accomplished by changing any other one factor under the control of the school."

Hunter identifies the eleven components of successful teaching as:

- Deliberate separation of genuine educational constraints from the "typical ethnic, financial, intellectual or emotional excuses which are excuses for learning failure."
- Determination of the learning a student has already achieved and what he or she is ready to learn in terms of degree of difficulty (sequence) and complexity in the affective, cognitive or psychomotor domain.
- Identification of productive learning behavior for achievement of the learning task for each particular learner.
- Determination of an instructional objective in terms of learner behavior.
- Identification of the principles of learning that are relevant to the accomplishment of the instructional objective.
- Adaptation of the principles to the particular situation and to each learner.
- "Use of self an an investment." Hunter defines this as the teacher using his or her own attributes plus competency in the specific learning area in order to enhance the learner's probability of successful accomplishment.
- Synthesis of the above decisions in a deliberate design or blueprint for a teaching-learning episode.
- Constant monitoring of the learner's progress.
- Determination to reteach, practice and extend, move on or "abandon ship" if, for some reason, the objective is not appropriate for the learner at this time.
- Actual teaching begins and teacher's observations of the learner augment and/or correct instruction.

Hunter's model contains evaluation materials which trained observers can use to appraise teacher behavior in light of the above criteria.

Studies of Teacher Behavior

A number of recent studies have tested the causal link between teacher behavior and student learning that are implied but not proved by correlational studies. Each of these studies showed statistically

significant results favoring teachers who used certain techniques over control teachers in producing student learning gains on standardized achievement tests.

Lorin Anderson *et al* for example, drew from 22 principles of small-group instruction derived from earlier work and organized them into a design for first-grade teachers to use with their reading groups. Moreover, teachers were observed and monitored to determine the degree to which they implemented the behaviors. Where the behaviors were implemented sufficiently, the findings were overwhelming positive, and according to Brophy, they substantiate previous work and provide "stronger evidence of a causal linkage between teacher behavior and student learning."

Among these behaviors:

- Once in the (reading) group, the children should be seated with their backs to the rest of the class while the teacher is facing the class.
- The introduction to the lesson should contain an overview of what is to come to mentally prepare the students for the presentation.
- The teacher should work with one individual at a time in having the child practice the new skill and apply the new concept, making sure that everyone is checked and receives feedback.
- The teacher should use a pattern for selecting children to take turns reading in the group or answering questions.
- When a child interrupts, the teacher should remind the child that everyone gets a turn and that he/she must wait his/her turn to answer.
- The teacher should ask probing questions.
- Praise should be used in moderation. The teacher should praise thinking and effort more than just getting the answer and should make praise as specific and individual as possible.
- Criticism should also be as specific as possible and should include specification of desirable or correct alternatives.

Jane Stallings' Teaching and Training Institute has devised similar recommendations based on training models for remedial reading instruction in junior and senior high schools. Her model was developed from a study of 45 secondary reading classrooms from six school districts. Teachers in subsequent groups were observed and evaluated at the beginning and end of the experiment and received instruction in teaching behavior found to be positively related to reading gains. These behaviors include: discussing or reviewing seatwork or homework; instructing new work; drill and practice; reading

aloud; focusing instruction on a small group or the total group; praise and support of success; positive corrective feedback for incorrect responses (rephrase question or probe); and short quizzes.

Stallings' work, funded by the National Institute of Education, also includes working with secondary principals to encourage observation of teachers and staff development programs. Useful tips she gives for basic skills improvement include:

- Teachers need to be directly involved with students to keep them on task.
- Teachers should distribute questions to all members of the class and support and guide the feedback.
- Teachers should offer several activities during a class period so students can develop listening, speaking, reading and writing skills to help them integrate information.
- Teachers need a well-focused, comprehensive, continuous staff development program to gain the skills needed to be effective teachers.
- Schools should minimize distractions that intrude upon classroom time.
- Schools should have a consistent and enforced policy for absences, tardiness and misbehavior.
- Schools should gain parent participation and support.
- Effective schools are a friendly place to be—teachers are available to students, schools are kept in good repair, student success is recognized throughout the school.

Earlier work by Stallings, Gage, John Crawford and others in the Program on Teaching Effectiveness at Stanford U. concentrated on the primary grades (including an extensive teacher training component for third-grade teachers) and resulted in similar recommendations.

Another model for fourth-grade mathematics teachers produced significant achievement gains for students. These teachers conducted reviews, checked homework, had students work on mental computation, engaged students in seat-work during the first one-and-a-half minutes of the lesson and held students accountable for seat-work at the end of the phase. In general, the trained teachers used the principles of direct instruction.

While these and other models derived from research have been found to be effective in teaching basic skills, it should not be inferred that they would necessarily be appropriate in other contexts. These strategies may be inappropriate in classes calling for higher-order cognitive skills or creativity. As Brophy cautions, for example, "Many objectives, such as poetry composition, oral dramatization or litera-

ture appreciation, are not easily or even appropriately pursued with the direct instruction approach."

Also, there is no one teacher model which is appropriate in all contexts or for all teachers. As Hunter cautions about her own work, "The inservice training in no way imposed a 'method' or 'recipe for success' on the teacher. Each teacher was encouraged to incorporate the ingredients of successful teaching into her own teaching style using the materials and format she preferred."

Teacher Training

Teacher training is provided by an assortment of nearly 1,400 institutions. In a special issue of the *Phi Beta Kappan* (October 1980), educators cited the need to revamp teacher preparation programs. Problem areas include admission standards, underfunding, lack of rigor in course requirements and poor preparation in subject areas.

An issue of *Basic Education* (June 1981) pegged another problem: a tendency on the part of education professors to shrug off responsibility for teacher preparation in subject areas and a similar tendency on the part of professors in other disciplines to ignore teacher preparation:

> Professors of education readily acknowledge that teachers must know their subjects, but they seem to discount, however unwittingly, the professional requirements of subject preparation . . . . If the doctors of philosophy were as concerned about the preparation of teachers in their subjects as teacher educators purport to be about their training in pedagogy, the arrangement might be satisfactory.

In a survey of teacher educators conducted by the Council for Basic Education, the majority of respondents agreed that teacher education stresses pedagogy at the expense of thorough subject preparation. Several respondents emphasized the need for a five-year curriculum to increase preparation in both pedagogy and subject areas. Several institutions have begun to implement a five-year curriculum and/or screen teacher education students more carefully.

The U. of Kansas at Lawrence, for example, has redesigned the course and field-work requirements of its teacher education program into a five-year program. Goals include: to prepare teachers for change; to prepare teachers to bridge the research/practice gap and to use individualized instruction and new technologies; to train teachers to serve as coordinators of learning and teaching; and to train teachers in more extensive and better-sequenced field experiences.

The program awards the bachelors' degree at the end of the fourth year. During the fifth year, students admitted to graduate school will earn 15 hours undergraduate and 15 hours of graduate

91

credit. Certification as a teacher is obtained upon successful completion of the fifth year of the program.

Inservice Education

What kinds of inservice education do teachers want and benefit from? The AFT Teacher Center Exchange, a federally funded clearinghouse, queried the presidents of 428 AFT locals in 36 states to find out the answer to this question. Respondents said they wanted programs to enable teachers to create a more positive learning environment for students and to help teachers with special education assignments; professional development programs such as those for basic skills competency testing; and teacher-to-teacher communication and activities that are intellectually relevant and provide a feeling of unity.

Gordon Lawrence of the U. of Florida examined 97 studies of inservice education and found teachers benefited most from programs which were school-based; emphasized self-instruction, demonstrations, supervised trials and feedback; provided opportunities for teachers to share information and provide mutual assistance; were linked to school-wide improvement efforts; and allowed teachers to choose their own goals and activities.

By contrast, programs which teachers found ineffective were those which imposed goals and activities, gave all teachers the same "prescription" regardless of whether they needed it or not, were too theoretical or simply a rehash of the "same old thing."

> **"In a space-age world where progress has been dynamic, education has been relatively static. Schools of education are out of step with the progress the world has achieved. In fact, in many cases, they are several decades behind."**
>
> **Harold C. Lyons, *Learning to Feel, Feeling to Learn***

According to a 1979 survey of inservice education by the National Council of States on Inservice Education, inservice training may be generating more financial support in states. About 90 percent of the states have formal authority for providing inservice education for school staffs, and 70 percent report spending state money to support staff development.

Many local districts develop their own inservice programs or form their own teacher centers. Current estimates of the number of

teacher centers are about 5,000 centers nationwide, most of which operate without federal funds. Still other districts adopt National Diffusion Network (NDN) programs which include inservice components. NDN projects include those in basic skills, special education, alternative schools and adult education.

Rewards

Many talented teachers feel unappreciated by parents, administrators, school board members and the community. Rewards for good teaching can improve morale and sense of self-worth. Rewards can include professional recognition, serving as teacher models, monetary incentives, improved working conditions, better job opportunities and invitations to testify on educational matters at school board meetings.

David Rosen, the academic administrator of Beacon College, suggests a few ways to recognize good teaching: "Ask all eighth-grade students, for example, to list names of up to five elementary teachers they had who they feel really 'cared about them and helped them learn.' Compile the results and send the results to teachers."

Other ideas include sending "You made my day" slips to teachers who have done something outstanding, allowing opportunities for teachers to share success stories and providing more opportunities for teachers to receive recognition from other adults.

Jean McQuain, coordinator of staff and organizational development for the Fairfax County (Va.) Schools, suggests districts provide incentives for teachers to receive training in critical teaching areas such as mathematics, science, computer science and special education.

Evaluation

Evaluation has long been a controversial process in education. Ideally, evaluation can help teachers improve their instructional effectiveness. Realistically, however, it can also be used to fire teachers or deny certification. Since it has been demonstrated that effective teaching behaviors vary with specific contexts, evaluation instruments can be misused if they involve narrow or inappropriate definitions of teacher behavior and are then used as a basis for making hiring or firing decisions.

Most evaluation experts agree that teacher evaluation should focus more on what the teacher achieves with students and less on how teaching is done.

Richard Manatt, a professor at Iowa State U. at Ames, for example, has developed a "package" evaluation system which includes teacher, administrator, program, curriculum and staff development

evaluation instruments. The main ingredients of this system are setting criteria and standards, monitoring and measuring performance and setting job improvement targets.

One instrument which Manatt and his colleagues helped develop for the Naperville (Ill.) Public School District contains 30 items in five general categories—productive teaching techniques, positive interpersonal relations, organized/structured class management, intellectual stimulation and desirable out-of-class behaviors. Steps in the evaluation process include self-evaluation by teachers, pre-observation conferences, classroom observations, post-observation conferences and setting job improvement targets.

Teacher Performance Assessment Instruments (TPAI) developed at the U. of Georgia are used for on-the-job assessment of teachers. These instruments are linked to the statewide requirement that new teachers receive a three-year non-renewable certificate which can be converted into a professional certificate after the demonstration of satisfactory on-the-job performance.

The TPAI includes 14 teaching competencies in areas such as planning, individualizing instruction, assessing, communicating with learners, using time and materials and developing positive self-concepts. Each of the competencies is defined by several indicators which are scored on a scale with five defined points. Indicators of a behavior such as "communicates with learners," for example, are: gives directions and explanations related to lesson content, clarifies directions and explanations when learners misunderstand lesson content, uses responses and questions from learners in teaching, provides feedback to learners throughout the lesson and uses acceptable written and oral expression with learners.

William Capie and his colleagues at the U. of Georgia have conducted research studies involving the reliability and validity of the TPAI. Capie finds:

> There have been replicated studies where scores on each competency and virtually every indicator have predicted student achievement gains. Other studies have shown positive relationships between TPAI ratings and both pupil engagement in learning activities and pupil perception of the learning environment.

In another study conducted by Homas Coker, Donald Medley and Robert Soar, however, discrepencies were found between common assumptions about effective teacher behaviors and both student achievement and self-concept gains. The initial behaviors or competencies had been identified by researchers, classroom teachers and the Georgia Dept. of Education. After observing 100 classrooms, the

researchers found that a number of behaviors originally identified as effective teaching behaviors were actually negatively related to student achievement. These included using nonverbal communication skills; using praise and/or rewards; making contact with a pupil who was off task; pausing, eliciting and responding to student questions; and giving pupils a voice in decision making. Using feedback from pupils to modify teaching related negatively in the elementary grades but positively in high school.

Relationships between teacher competencies and gains in pupil self-concept were found to be even more at odds with expectations.

Behaviors that were related in the expected direction included listening to students; respecting the pupil's right to speak; selecting goals and objectives appropriate to students; involving students in organizing and planning; giving clear, explicit directions; and maintaining self-control.

While Coker's findings are not at variance with the effective teaching behaviors identified, he notes that any list of competencies tied to an evaluation system must be tested for validity and reliability. Moreover, certain behaviors may be effective or ineffective depending upon the context and goals of instruction. (In his study, for example, the item "accepting and using student ideas" related positively with self-concept but not with achievement.) Just as there is no one teaching model, it cannot be said that the perfect evaluation instrument has been found.

Moreover, and in defense of self-evaluation, many researchers find that teachers do a remarkable job of correcting their own teaching.

Studies of a cross-section of schools in one large California school district led the researcher to conclude:

> Experienced teachers have a 'picture of the classroom in their heads' and draw from a rich texture of experiences to manage the classroom and determine the structure of the lesson. Teachers self-correct and if they want to plan an innovation, they rearrange or correct the lesson and the classroom to conform to the picture of how they imagine the ideal situation.

Summary

- Researchers, studies of teacher behavior and educators have pinpointed ways to upgrade both the affective and cognitive aspects of teaching and learning. Many of these recommendations concern improving diagnosis and prescription, active learning time, feedback and corrective procedures, instruc-

tional cues, classroom climate and management techniques.

- Other factors which affect instruction include quality of teacher preparation in both pedagogy and subject areas, inservice instruction, evaluation procedures and reward systems.

Evaluation of Teachers as Humanists and Team Players

Humanist

Demonstrates trust in dealing with students.

Treats students fairly.

Is tolerant of the human weaknesses and idiosyncracies of students.

Displays enthusiasm toward teaching.

Minimizes negative feedback or criticism and emphasizes positive or encouraging feedback.

Shows respect for students.

Is available to students when they need assistance.

Is patient with students.

Accepts students as they are and for what they are.

Displays a sense of humor.

Is aware of and deals with the uniqueness of students.

Is dedicated to facilitating student development.

Institutional Representative

Carries a fair share of the workload and is a spark or catalyst for others.

Works harmoniously with other members of the staff in daily teaching activities and educational program development.

Strives for professional improvement through positive participation in professional growth activities.

Participates in and assumes responsibility for those extra activities that are valued by students, parents and other professionals.

Works with the school board and administrators in formulating and applying school policies and regulations.

Provides, through appearance and behavior, a suitable model for young people.

Fosters through appearance and behavior, a positive impression of teacher as a professional.

Jim Sweeney, assistant professor of educational administration, Iowa State.

Conclusion

Effective teaching is both an art and a science. Although specific teaching behaviors vary with context, several generalizations based upon research can be made:

- Effective teachers believe all students can learn and take responsibility through assigning appropriate tasks and other means to see that students do learn.
- Effective teachers keep students on task, use clear cues and provide evaluation that is clear and instructive.
- Effective teachers use a variety of instructional methods ranging from whole group to individualized instruction, from mastery learning to the discovery method. Skill level, subject matter and goals of instruction determine the method selected.
- Direct instruction has been found to be a particularly effective approach when basic skill acquisition is the intended goal.
- Effective teachers are good managers of instruction and people. They use a variety of good management practices including setting a classroom tone or climate conducive to learning, preventing disciplinary problems through planning, eliminating disruptions and delays, monitoring student attention, and establishing clear rules and expectations.
- Effective teachers develop a leadership style which is essentially democratic and authoritative. They view their role as helping the potentials for development and for assuming responsibility inherent in every student.

It is interesting to recall Peter Drucker's observations that good teachers are both born and made; they may be gifted with charisma and other leadership qualities and/or learn the methods of the pedagogue. If however, they possess both talents, they will be universal teachers. Both art and science are crucial in effective teaching.

BIBLIOGRAPHY

Anderson, Lorin and Jones, Beau F. "Designing Instructional Strategies Which Facilitate Learning for Mastery." Paper presented at the annual meeting of the American Educational Research Association, Los Angeles, 1981.

Berliner, David and Tikunoff, William. "The California Beginning Teacher Evaluation Study: Overview of the Ethnographic Study," *Journal of Teacher Education*, Vol. 27, No. 1, 24-30.

Block, James. *Mastery Learning: Theory and Practice*. New York: Holt, Rinehart and Winston, 1971.

Bloom, Benjamin. *All Our Children Learning: A Primer for Parents, Teachers and Other Educators*. New York: McGraw-Hill Book Company, 1981.

Brophy, Jere. "Advances in Teacher Effectiveness Research." East Lansing: Michigan State U., 1979.

Brophy, Jere. "Recent Research on Teaching." East Lansing: Michigan State U., 1980.

Brophy, Jere. "Reflections on Research in Elementary Schools," *Journal of Teacher Education*, Vol. 27, No. 1, 31-34.

Brophy, Jere. "Teacher Praise: A Functional Analysis." East Lansing: Michigan State U., 1979.

Brophy, Jere and Evertson, Carolyn. *Student Characteristics and Teaching*. New York: Longman, Inc., 1981.

Brophy, Jere and Putnam, Joyce. "Classroom Management in the Elementary Grades." East Lansing: Michigan State U., 1978.

Coker, Homer, Medley, Donald and Soar, Robert. "How Valid Are Expert Opinions About Effective Teaching?" *Phi Delta Kappan*, October 1980, Vol. 62, No. 2, 131-34.

Cohen, Michael and others. "Instructionally Effective Schools." Paper prepared for the National Institute of Education, 1980.

Cohen, Michael. "Recent Advances in our Understanding of School Effects Research." Paper presented at annual meeting of the American Assn. of Colleges for Teacher Education, Chicago, 1979.

The Council for Basic Education. "Good and Proper Teacher Preparation," *Basic Education*, Vol. 25, No. 10, 3-9.

The Council for Basic Education. "The Profession of School Teaching," *Basic Education*, October 1981, Vol. 25, No. 2, 3-4.

Crawford, John and Stallings, Jane. "Experimental Effects of Inservice Teacher Training Derived from Process-Product Correlations in the Primary Grades." Washington, D.C.: National Institute of Education, 1978.

Denham, Carolyn and Lieberman, Ann, editors. *Time to Learn*. Washington, D.C.: U.S. Department of Education, 1980.

Doyle, Walter. "Making Managerial Decisions in the Classroom," *Classroom Management*. Chicago: U. of Chicago Press, 1979.

Dunn, Rita and others. "Learning Style Researchers Define Differences Differently," *Educational Leadership*, February 1981, 372-75.

Epstein, Herman. "Learning to Learn: Matching Instruction to Cognitive Levels," *Principal*, May 1981, 25-30.

Fitzgerald, Mary F. "Cognitive Styles and Achievement," *The School Administrator*, December 1980, 18-20.

Gage, Nathaniel Lees. "A Factorially Designed Experiment on Teacher Structuring, Soliciting and Reacting," *Journal of Teacher Education*, Vol. 27, No. 1, 35-38.

Gage, Nathaniel Lees. *The Scientific Basis of the Art of Teaching*. New York: Teachers College Press, 1978.

Gage, Nathaniel Lees and Giaconia, Rose. "Teaching Practices and Student Achievement: Causal Connections," *New York University Education Quarterly*, 1981, Vol. 12, No. 3, 2-9.

Gage, Nathaniel Lees and others. "An Experiment on Teacher Effectiveness and Parent-Assisted Instruction in the Third Grade." Washington, D.C.: National Institute of Education, 1978.

Glasser, William. *Schools Without Failure*. New York: Harper & Row, 1969.

Good, Thomas and Brophy, Jere. *Looking into Classrooms*. New York: Harper & Row, 1978.

Good, Thomas. "Teacher Effectiveness in the Elementary School," *Journal of Teacher Education*, Vol. 30, No. 2, 52-64.

Good, Thomás and Grouws, Douglas. "The Missouri Mathematics Effectiveness Project: An Experimental Study in Fourth-Grade Classrooms." *Journal of Educational Psychology*, Vol. 71, No. 3, 355-362.

Good, Thomas and Grouws, Douglas. "Teaching Effects: A Process-Product Study in Fourth-Grade Mathematics Classrooms," *Journal of Teacher Education*, Vol. 28, No. 3, 49-54.

Gudridge, Beatrice. *Teacher Competency*. Arlington: American Assn. of School Administrators, 1980.

Hart, Leslie. "Don't Teach Them; Help Them Learn," *Learning*, March 1981, 39-40.

Howsam, Robert. "The Workplace: Does It Hamper Professionalization of Pedagogy? *Phi Delta Kappan*, October 1980, Vol. 62, No. 2, 93-96.

Hull, Elizabeth. "Our Children Are Treated Like Idiots," *Psychology Today*, July 1981, 28-44.

Hunter, Madeline. "Appraising Teaching Performance: One Approach," *Principal*, February 1973.

Hunter, Madeline. *Improved Instruction*. El Sequndo, California: Tip Publications, 1976.

Hunter Madeline. "Increase Teaching Competency—The Most Potent Variable?" 1974.

Hunter, Madeline and Russell, Doug. "Planning for Effective Instruction," 1976.

Jones Beau F. "Maximizing Learning for Low Achieving Students: An Argument for Learning Strategies and Mastery Learning Instruction." Paper presented at the American Assn. of School Administrators' Summer Instructional Leadership Conference, Chicago, July 1980.

Kast, Fremont and Rosenzweig, James. *Organization and Management*. New York: McGraw Hill Book Company, 1970.

Katims, Michael and Jones, Beau F. "Chicago Mastery Learning Program: A Technology for School Improvement," *Educational Technology*, September 1981.

Koehler, Virginia. "The Discovery of Context in Process-Product Studies." Paper presented at the annual meeting of the American Educational Research Assn. Los Angeles, California, 1981.

Koehler, Virginia. "Effective Schools Research and Teacher Change." Paper presented at the annual meeting of the American Educational Research Assn., Los Angeles, California, 1981.

Koehler, Virginia. "The Quality of Teaching." Paper prepared for the National Institute of Education, 1981.

Levin, Tamar and Long, Ruth. *Effective Instruction*. Alexandria, Virginia: Assn. for Supervision and Curriculum Development, 1981.
Lewis, Anne. "Teachers' Salaries: Hard Times Ahead," *Learning*, March 1981, 28-29.
Lyons, Harold C. Jr. *Learning to Feel, Feeling to Learn*. Columbus: Charles E. Merrill Publishing Company, 1971.
Lyons, Gene. "Why Teachers Can't Teach," *Phi Delta Kappan*, October 1980, Vol. 62, No. 2, 108-112.
McCarthy, Bernice. *The 4-MAT System*. Arlington Heights, Illinois: Excel, Inc., 1980.
Medley, Donald. *Teacher Competency and Teacher Effectiveness*. Washington, D.C.: American Assn. of Colleges for Teacher Education, 1977.
Newsweek, "Teachers Are in Trouble," April 27, 1981, 78-84.
O'Leary, K. Daniel and O'Leary, Susan G. *Classroom Management*. New York: Pergamon Press, Inc., 1977.
O'Neal, Vincent. "How Much Is a Teacher Worth?" *Learning*. March 1981, 29-31.
Pennsylvania School Boards Assn. "Success Formula Found for Student Learning," *Information Legislative Service*, Vol. 19, No. 24.
Peterson, Penelope L. and Walberg, Herbert J., editors. *Research on Teaching*. Berkeley: McCutchan Publishing Corp., 1971.
Phi Delta Kappan. "On Mixing and Matching of Teaching and Learning Styles," *Practical Applications of Research*, Vol. 3, No. 2.
Rosenshine, Barak. "Content, Time and Direct Instruction," *Research on Teaching*. Berkeley: McCutchan Publishing Corp., 1971.
Rosenshine, Barak. "Recent Research on Teaching Behaviors and Student Achievement," *Journal of Teacher Education*, Vol. 27, No. 1, 61-64.
Rutter, Michael and others. *Fifteen Thousand Hours: Secondary Schools and Their Effects on Children*. Cambridge: Harvard U. Press, 1971.
Shavelson, Richard. "Research on Teacher's Pedagogical Thoughts, Judgements, Decisions and Behavior," 1980.
Shavelson, Richard. "Teachers' Estimates of Student 'States of Mind'" *British Journal of Teacher Education*, Vol. 3, No. 2, 131-38.
Shavelson, Richard. "Teacher's Sensitivity to the Reliability of Information in Making Pedagogical Decisions," *American Educational Research Journal*, Spring 1977, Vol. 14, No. 2, 83-97.
Slavin, Robert. "Synthesis of Research on Cooperative Learning," *Educational Leadership*, Vol. 38, No. 8, 655-660.
Spady, William and Mitchell, Douglas. "Authority and the Management of Classroom Activities," *Classroom Management*. Chicago: U. of Chicago Press, 1979.
Stallings, Jane. "Allocated Academic Learning Time Revisited, or Beyond Time on Task," *Educational Researcher*, Vol. 9, No. 11, 11-16.
Stallings, Jane. "Changing Teacher Behavior: A Challenge for the 1980s." Paper presented to the annual meeting of the American Educational Research Assn., Los Angeles, California, April 1981.
Stallings, Jane. "How Instructional Processes Relate to Child Outcomes in a National Study of Follow Through," *Journal of Teacher Education*, Vol. 27, No. 1, 43-47.
Stallings, Jane. "Tips to Principals from Research on Effective Strategies for Teaching Basic Skills in Secondary Schools." Paper presented to the National Study Group for Secondary Principals, 1981.
Stevens, Robert and Rosenshine, Barak. "Advances in Research on Teaching," *Journal of Exceptional Children*, Vol. 2, No. 1, 1-9.
Time, "Help! Teacher Can't Teach!" June 16, 1980, cover, 54-60.

Wang, Margaret. "The Design and Study of Adaptive Learning Environments. . . ." Pittsburgh: Learning Research and Development Center, 1980.
Wang, Margaret, "Development and Consequences of Students' Sense of Personal Control." Pittsburgh: Learning Research and Development Center, 1981.
Wang, Margaret. "Mainstreaming Exceptional Children. . . ." Pittsburgh: Learning Research and Development Center, 1981.
Wang, Margaret, "The Self-Schedule System. . . ." Pittsburgh: Learning Research and Development Center, 1976.
Watts, Doyle. "Admission Standards for Teacher Preparation Programs: Time for Change," *Phi Delta Kappan*, October 1980, Vol 62, No. 2, 120-22.